NETWORK WORLD

THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING

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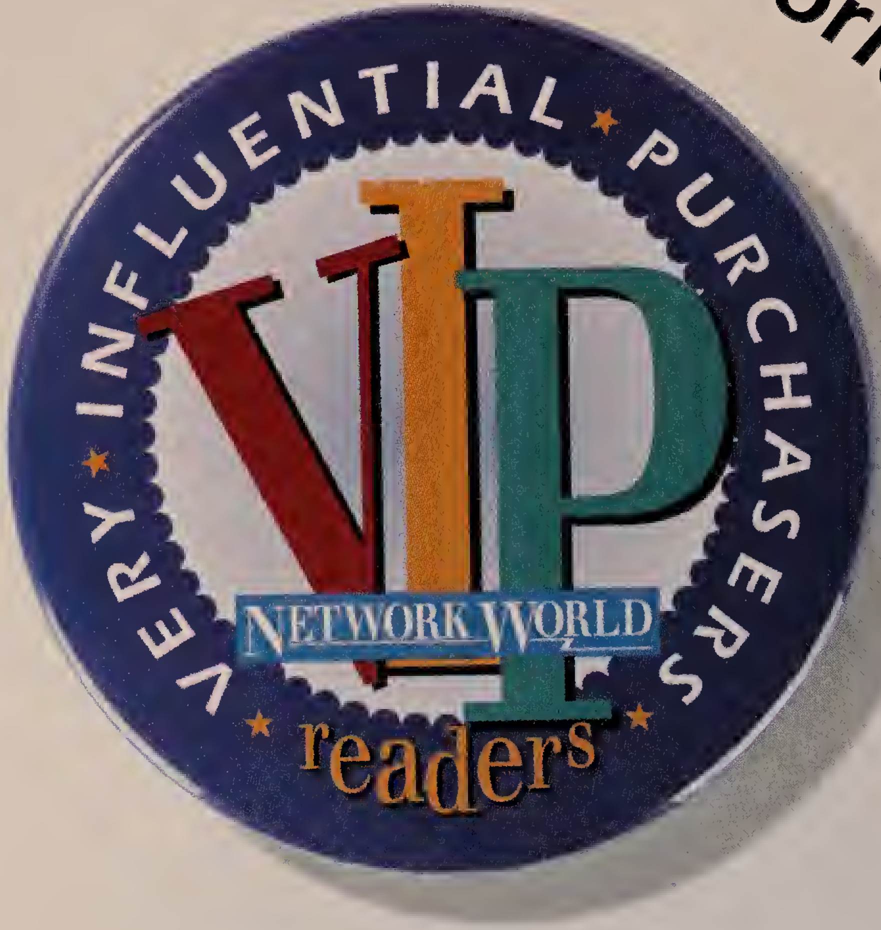

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NETWORK WORLD
THE NEWSWEEKLY OF ENTERPRISE NETWORK COMPUTING
AN INTERNATIONAL DATA GROUP PUBLICATION ♦ VOLUME 11, NUMBER 22 ♦ MAY 30, 1994

NETWORK ACCESS

AT&T defines wider SDN role

BY JOANIE WEXLER

Dallas

AT&T last week revealed aggressive plans to further the integration of its SDN virtual private net with other offerings, including its InterSpan frame relay service, enabling users to reduce access costs and qualify for larger bulk discounts.

In addition to InterSpan, the carrier will by year end provide Software-Defined Network access to its Internet service and allow SDN status for telecommuters. Come September, the carrier will also bundle inbound 800 service under the SDN umbrella, said Glenn Starr, AT&T SDN product manager, at the International Communications Association's annual conference here.

AT&T's ongoing melding of its services means companies will be able to put frame relay, Internet access, telecommuter, 800 service and other phone numbers into their private SDN databases.

This will allow SDN shops to lump more traffic together under one calling plan to leverage bigger discounts. It also will reduce the number of access lines needed to tap into different services and consolidate sales and billing — all attractive benefits, customers said.

INSIDE

AT&T and partners set to announce global service plan. *Page 9.*

For example, access to InterSpan via SDN would "extend the core frame relay network to remote users, who would gain access to it through one phone call into their SDN network," Starr explained.

Today, users have the option of accessing the frame relay net via dedicated leased lines or dial-up links from their local telephone companies.

Under the forthcoming SDN option, these users

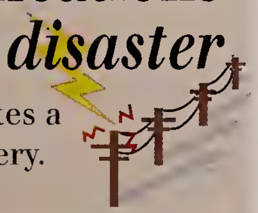
See **SDN**, *page 62*

PRODUCT REVIEW

Coping with telecommunications

When the phone lines go down, Telular's Phonecell-4M offers sites a cellular route to recovery.

Page 44.



NEWSPAPER

Vendors pair to advance LAN mgmt.

BY SKIP MACASKILL

Menlo Park, Calif.

SynOptics Communications, Inc. and Network General Corp. next week will announce plans to jointly develop products that ease the job of managing existing LAN internets and emerging switched LANs.

The three-phase plan includes improving net monitoring and analysis methods in shared-access local-area networks; incorporating Network General's Sniffer capabilities into SynOptics' net management software; and developing new tools that can keep pace with the high speeds of emerging Asynchronous Transfer Mode (ATM) networks.

Both companies declined to comment on the matter.

"In some switched networks where every port is essentially a LAN in and of itself, it's difficult to get a grip on traffic patterns because there is no shared segment to drop a Sniffer onto," said one source close to both companies. "Current monitoring methods only give bits and pieces of the whole picture. Users need something new."

See **LAN mgmt.**, *page 62*

Analyzing switched networks

The Network General-SynOptics plan

Phase 1: Network General's Foundation Manager will analyze RMON data captured by SynOptics' Advanced Analyzer Agents.

Phase 2: Network General's DSS will be integrated with SynOptics' Optivity net management package.

Phase 3: Companies will team on new troubleshooting and network monitoring tools for ATM environments.

GRAPHIC BY TERRI MITCHELL

Digital's net unit on the block?

BY JIM DUFFY

Maynard, Mass.

Digital Equipment Corp. is reportedly looking to sell off its network software and hardware lines to shore up sagging financials and refocus on its core computer hardware business, according to Wall Street analysts and the company's business partners.

The sale could disrupt users, especially large Digital shops, by speeding the demise of Digital's more mature networking gear and causing snags in product service and support. It could also force users to purchase Digital equipment from multiple sources.

Digital's net products business sells predominantly hardware, including the DEChub line, routers, network interface cards, as well as Fiber Distributed Data Interface and Asynchronous Transfer Mode concentrators and switches. Networking software is

See **Digital**, *page 62*

Mounting losses

Digital has lost $338.6 million over the first nine months of its 1994 fiscal year. The company has lost $3 billion over the past three years.

▼ ▼ ▼

Routers on right path for handling SNA traffic

BY MICHAEL COONEY AND SKIP MACASKILL

Manasquan, N.J.

Router test results to be released this week show Proteon, Inc. riding the crest of the performance wave, Wellfleet Communications, Inc. turning in a solid effort and IBM languishing in the surf with its effort to integrate SNA and TCP/IP nets.

The Tolly Group tested the vendors' implementations of IBM's proposed Data Link Switching (DLSw) standard for carrying Systems Network Architecture and Network Basic I/O System traffic over Transmission Control Protocol/Internet Protocol networks.

The laboratory will also report the results of a separate round of tests that focused on the proprietary SNA tunneling schemes of Cisco Systems, Inc. and 3Com Corp., both of which earned high marks (see Figure 2, page 61). A third test shows that all five vendors passed muster in sustaining a Logical Link Control 2 session even when the wide-area link was completely saturated with other SNA or non-SNA traffic.

All tests were sponsored solely by Tolly Group, an independent test lab here, although participating vendors paid an entry fee.

See **Routers**, *page 61*

IBM gets taste of its own net tools

BY MICHAEL COONEY

Raleigh, N.C.

Leading-edge management tools from IBM are helping its outsourcing subsidiary more effectively manage a massive internal IBM SNA net while trimming operations staff.

Faced with the prospect of centrally managing the southeast region of IBM's network — which comprises 200,000 Systems Network Architecture logical units and more than 3,000 local-area network devices — Integrated Systems Solutions Corp. (ISSC) turned to IBM for object-oriented tools that should carry it into the next century.

JOSEPH RODRIGUEZ

Alan Debevec gets the most of IBM's latest management tools. For a look at future Big Blue offerings, see story, page 7.

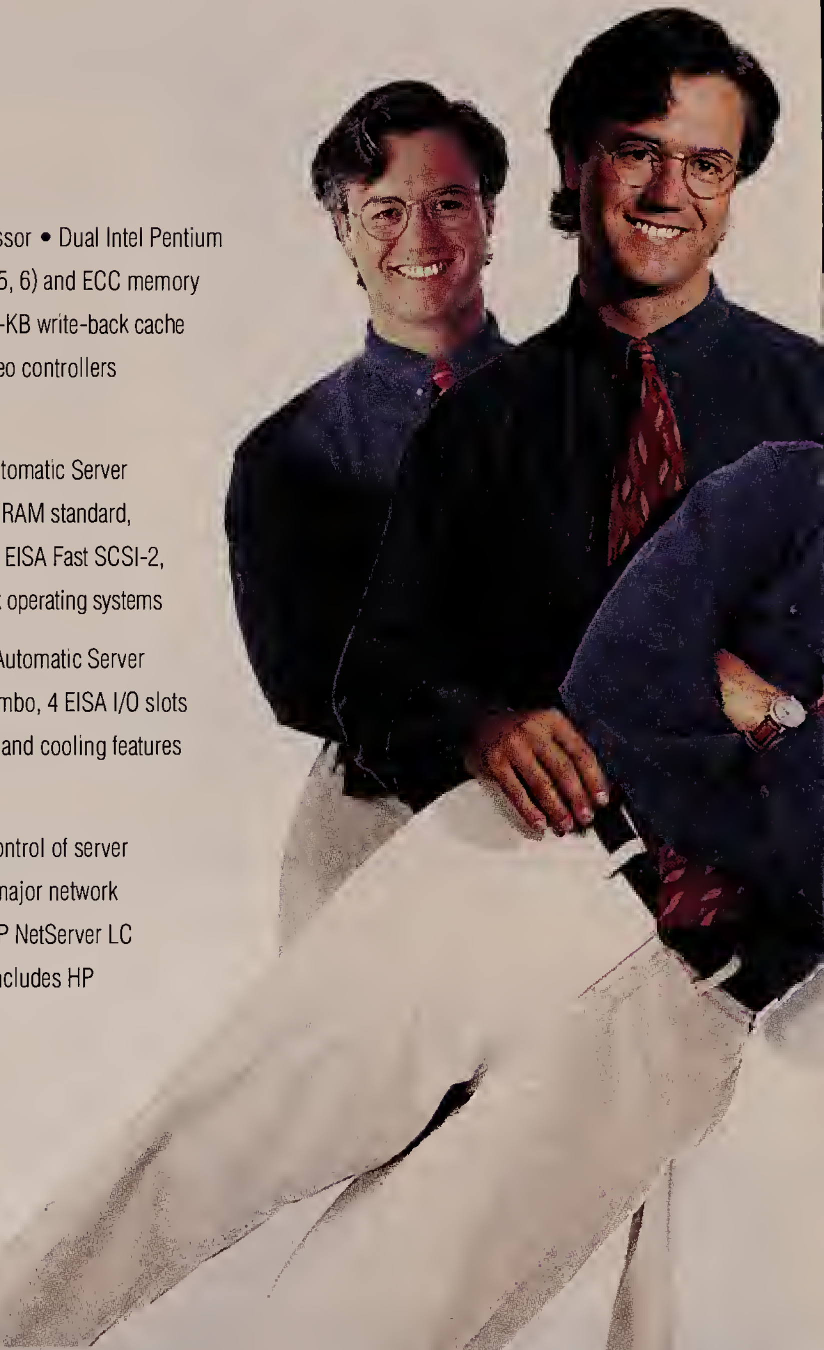
The tools, most of which are generally available, have enabled the firm to cut its management staff from about 50 operators to eight, dramatically reducing support costs. At the same time, productivity is up because integral parts of the net fail less frequently and problems are handled quicker.

"We recently completed a massive consolidation where we brought all of our mainframe power here, so our major requirement was to be able to centrally manage our entire enterprise basically from one screen," said Alan Debevec, an advisory programmer with ISSC's Southeast Region Solution Center.

To achieve that, ISSC deployed a suite of IBM

See **ISSC**, *page 61*

†U.S. list prices. *U.S. list price for HP NetServer 4/66 LM Model 1 including 66-MHz Intel486 DX2, 16-MB RAM. **U.S. list price for HP NetServer 4/66 LF Model 1 including 66-MHz Intel486 DX2, 8-MB RAM. ***U.S. list price for HP NetServer 4/66 LC Model 1 including 66-MHz Intel486 DX2 and 8-MB RAM. Prices subject to change without notice. Intel486 DX2, 1DX4 and Pentium are trademarks of Intel Corporation and the Intel Inside and Pentium Processor logos are registered trademarks of Intel Corporation. ©1994 Hewlett-Packard Company PPG404



intel inside

HP NetServer LM • 90- and 66-MHz Intel Pentium™ processor, 66-MHz Intel486™ DX2 processor • Dual Intel Pentium 66-MHz Symmetric Multiprocessing (SMP) • Optional internal hot swap disk array (RAID 0, 1, 5, 6) and ECC memory • HP NetServer Assistant 2.0 included • 16-MB RAM standard, 384-MB maximum • Up to 256-KB write-back cache • 9 mass storage shelves • 8 EISA bus-master I/O slots • Integrated EISA Fast SCSI-2, IDE and video controllers • Designed-in security, serviceability, and cooling features • Tested and certified on all major network operating systems

HP NetServer LF • 66-MHz Intel Pentium processor, 100-MHz IntelDX4 processor, 66-MHz Intel486 DX2 processor • Automatic Server Restart • HP NetServer Assistant 2.0 included • Optional internal hot swap disk array (RAID 0, 1, 5, 6) • 8-MB and 16-MB RAM standard, 192-MB maximum • 256-KB write-back cache • 9 mass storage shelves • 2 PCI, 7 EISA bus-master I/O slots • Integrated EISA Fast SCSI-2, IDE and video controllers • Designed-in security, serviceability, and cooling features • Tested and certified on all major network operating systems

HP NetServer LC • 66-MHz Intel Pentium processor, 100-MHz IntelDX4 processor, 66-MHz Intel486 DX2 processor • Automatic Server Restart • 8-MB and 16-MB RAM standard, 192-MB maximum • Up to 256-KB write-back cache • 1 PCI, 1 PCI/EISA-combo, 4 EISA I/O slots • 5 mass storage shelves • Integrated EISA Fast SCSI-2, IDE and video controllers • Designed-in security, serviceability, and cooling features • Tested and certified on all major network operating systems

Management Solutions: HP Remote Assistant • $999† for intelligent EISA card and software • Complete remote control of server • Continual environmental and server hardware monitoring and error logging • Automatic Server Restart • Works on all major network management environments **HP NetServer Assistant 2.0** • Included with HP NetServer LM and LF; $495† option for HP NetServer LC • A customizable server management software tool set • Proactive system/component alerting and status information • Includes HP OpenView 7.1 • Comprehensive troubleshooting tools

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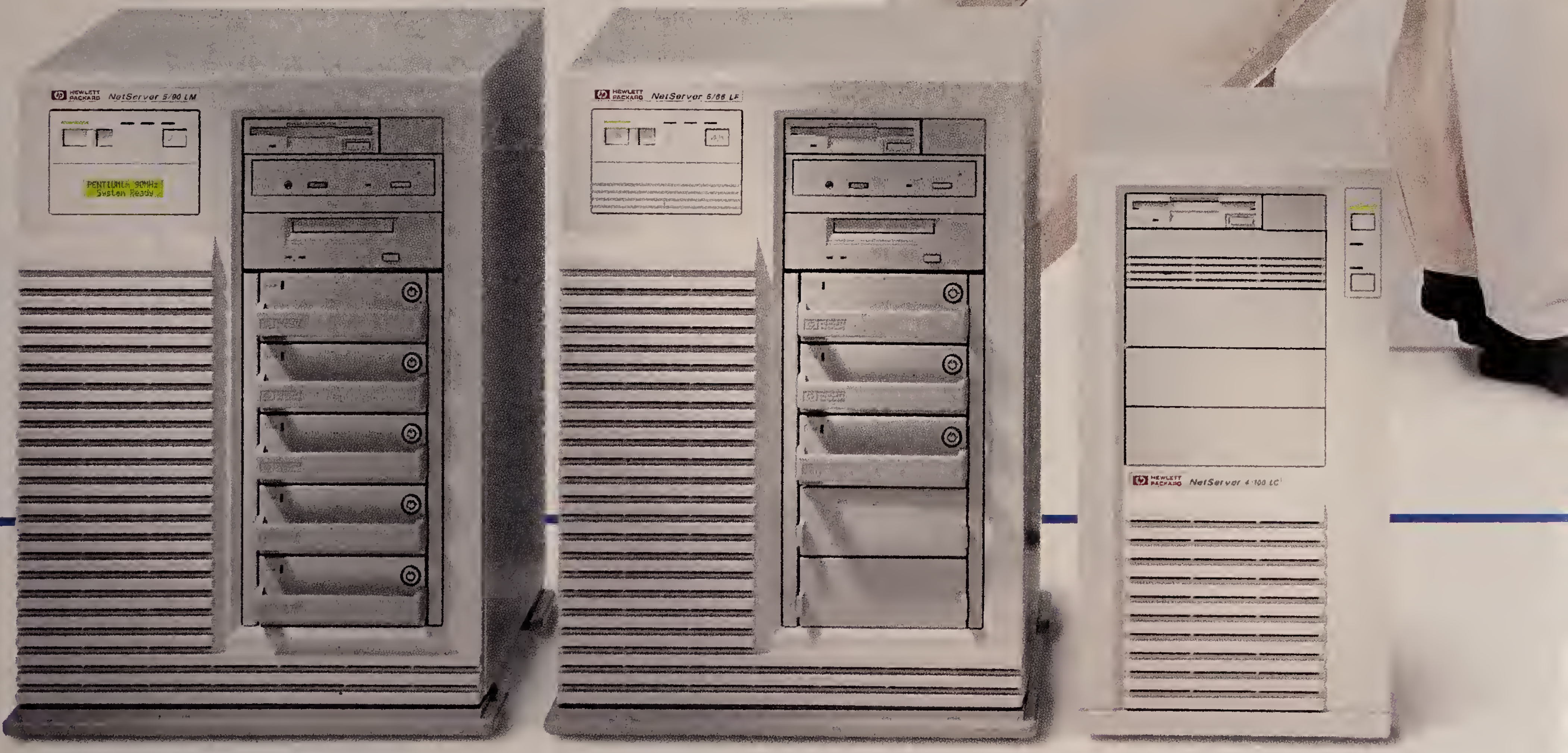
HEWLETT PACKARD NetServer 5/90 LM
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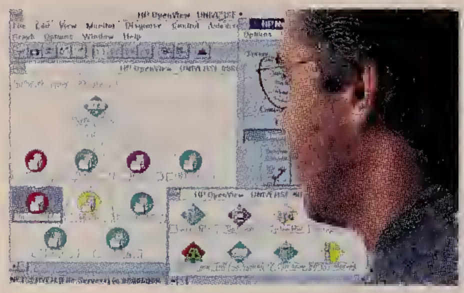

With HP NetServer Assistant 2.0, you get intuitive viewing of your network, comprehensive diagnostics, plus local and remote management, all in one package.

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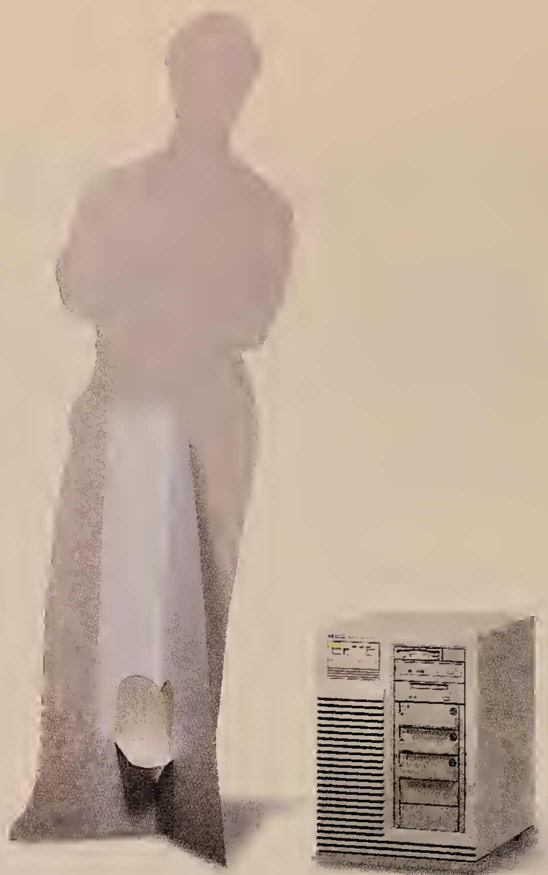
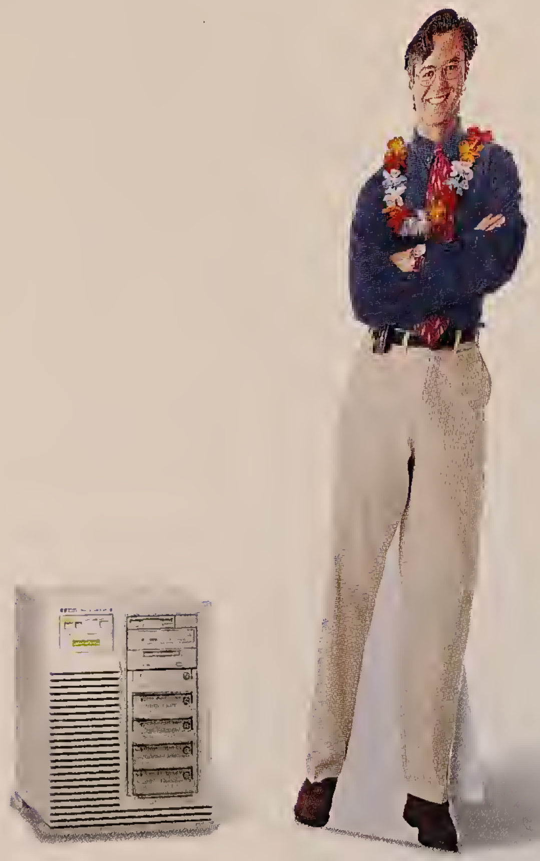


Check error logs and diagnose your server across campus.



Power cycle the server in Kalamazoo.

Open a window on the world.

MANAGE EVERYWHERE, FROM ANYWHERE.

Briefs

Getting personal. IBM last week for the first time went on record about its plans for new services to be announced later this year and commercially deployed in 1995 based on what it calls its Intelligent Communications architecture (*NW,* May 23, page 28). The company detailed the architecture, which calls for the personalization of network-based services using intelligent agents and the integration of various media into one mailbox, at the Comdex/Spring show in Atlanta. IBM is working with Advantis, ARDIS Co. and Prodigy Services Co. for the initial services.

Sleepless in Seattle. The Washington Utilities and Transportation Commission last week authorized Teleport Communications Group (TGC) to provide local switched services in Seattle. TCG Vice Chairman Jeffrey Roe said the company has to negotiate interconnection arrangements with US WEST, Inc. and other local telephone companies before it can offer switched services there.

Serving up the Internet. Not everyone is against the commercialization of the Internet. Seattle-based NovX, Inc. last week announced a line of Internet servers designed for business to market their products and services over the Internet. The servers are based on the Internet standards for WorldWide Web, Gopher, Wide Area Information Server and File Transfer Protocol.

NovX: (206) 442-8244.

You oughta be in pictures. Rolm, a Siemens company, last week announced the Rolm Videoset, a group conferencing system based on the international H.320 standards. The new offering will work with Rolm's private branch exchange systems. The Rolm Videoset, which costs $14,995, is being manufactured by PictureTel Corp.

Rolm: (408) 492-4676.

Digital on Patrol. Digital Equipment Corp. and BMC Software, Inc. last week said they will integrate BMC's Patrol database monitoring and management software with Digital's Polycenter NetView management platform. This integration will enable customers to manage heterogeneous, distributed databases from Polycenter NetView consoles. The integrated product will be available in September.

Put it in ConText. Oracle Corp. has come up with a solution for those users suffering information overload. The company last week released ConText, an application designed to read and semantically analyze text in databases to filter out information people need to do their jobs. ConText includes a 600,000-word dictionary with as many as 1,000 pieces of linguistic data per word to help it analyze text content. Prices range between $7,500 and $100,000, depending on hardware platform.

Canned spam. Internet users suffered another "spam attack" last week, this time from a Florida public-access host user who flooded Usenet conferences with ads for a thigh-reducing cream. Retribution, however, was swift. Administrators at the user's site quickly yanked his account. Crafty Internetters also created "cancel" messages to delete his postings across the network. Unfortunately, some used the wrong syntax, which meant they knocked out not only the original ad, but messages discussing ways to counter it.

Going once, going twice... You probably won't find Sotheby's at this auction. The Federal Communications Commission last week said it plans to auction spectrum for narrowband Personal Communication Services on July 24-27. The country's first spectrum auction will feature air space for advanced voice paging, two-way acknowledgment paging, data messaging, and both one-way and two-way messaging and facsimile. Licenses available will include 10 nationwide narrowband permits.

Contacts

ADDRESS: Network World, 161 Worcester Rd., Framingham, MA 01701. PHONE: (508) 875-6400; FAX: (508) 820-3467; INTERNET: network@world.std.com.; BBS: Interact with other readers: download free software, submit letters to the editor, leave news tips, change of address requests or hunt for jobs by using your IBM, Apple or other computer to dial into the BBS at speeds up to 9.6K bit/sec by dialing (508) 620-1178 or (508) 620-1160. READER ADVOCACY FORCE (R.A.F.) HOTLINE: Contact us with story tips about pressing user issues, (800) 622-1108, Ext. 487; NETWORK HELP DESK: Contact Dana Thorat via any of the above means.

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Users at Comdex agree that Microsoft has begun to make inroads into Novell's market dominance by playing nicely with NetWare. *Page 5.*

Sybase adds to downpour of multimedia product offerings with its net structure plans. *Page 5.*

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First fruits of global ventures appear as telecommunications carriers commit to offer international services. *Page 9.*

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New DECnet/OSI release is functionally equivalent to VAX versions. *Page 14.*

CLI to ditch work on a Windows desktop video system, choosing to resell Intel's ProShare. *Page 14.*

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Desktop ATM gets boost from several camps, including Olicom, ENI and start-up FVC. *Page 24.*

ALR and IBM tout their new servers as high performance at low prices. *Page 24.*

GLOBAL SERVICES

Airborne data may actually be more resistant to eavesdroppers than information traversing traditional land-lines. *Page 30.*

ICA attendees predict a 10-year shakeout of the telecommunications industry. *Page 30.*

CLIENT/SERVER APPLICATIONS

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Lotus buys back the company it once spun off to develop Notes, but says the move should not affect product functionality. *Page 36.*

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Network Innovator

Researcher and teacher Richard Mandelbaum's innovations help chart the course for the Information Superhighway. *Page 48.*

Network HELP desk

Network World *tracks down answers to your questions regarding products, services, technologies or disputes with vendors. Please submit questions to Dana Thorat at (800) 622-1108, via fax at (508) 820-3467, via the Internet at djt@world.std.com or via CompuServe at 73244,2673.*

Do you know what performance measurement tools are available to determine response times for users at workstations, for host transactions and for internetwork traffic?

Doug Josephson, Wichita, Kan.

Bill Erdman, internetworking product-line manager at Make Systems, Inc., a software provider of network decision management tools based in Mountain View, Calif., replies:

There are several issues to consider here. To thoroughly understand the effectiveness of the network, net modeling tools are commonly used. These tools calculate the bandwidth requirements relative to the applications being used across the network. They also can be used to estimate response times between host stations as well as generate reports on the single point of failures within the network and the most congested links within the wide-area backbone.

Net modeling tools can be based on either of two approaches: demand-level simulation or discrete event simulation. Demand-level simulation dynamically discovers the components within the network, including the routers, LANs, WANs and networked applications using a standard SNMP discovery agent. Predescribed router and LAN modules are matched to the actual components discovered within the network. These modules provide performance, latency and throughput metrics to the simulator. A graphical model is provided for the user to obtain bandwidth utilization information, latency estimates and best path routing reports. Users can then perform what-if analyses by altering the design of the network, simulating the addition of new users or applications, or by dynamically failing the links between host stations. Make Systems' suite of NetMaker Extensible Architecture (XA) tools provide these modeling capabilities. For more product information, call Make Systems at (800) 545-6253.

Products based on discrete event simulation use predefined building blocks that the user

See **Help desk**, *page 49*

Feds approve standard for signing electronic documents

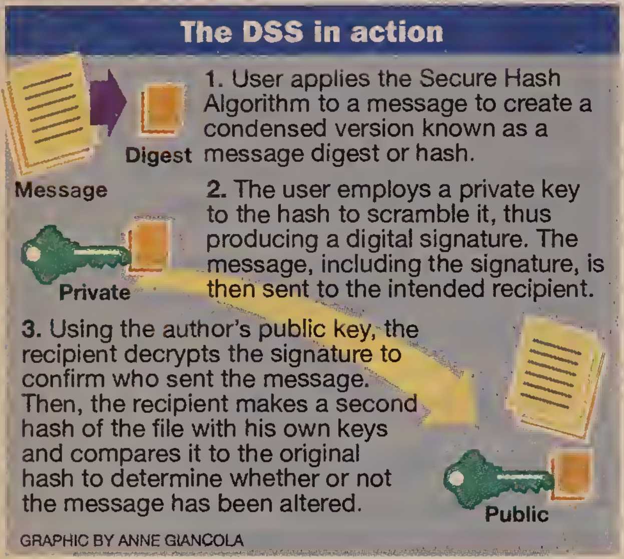
BY ELLEN MESSMER

Washington, D.C.

After three years of controversy, the National Institute of Standards and Technology (NIST) finally issued the Digital Signature Standard (DSS), making its use mandatory by federal agencies signing documents exchanged over computer networks.

In an action overseen by Vice President Al Gore's office, the U.S. government dismissed long-standing patent claims by Public Key Partners, Inc. (PKP) and declared the DSS freely available and a suitable substitute for a written signature.

The DSS in action



1. User applies the Secure Hash Algorithm to a message to create a condensed version known as a message digest or hash.

2. The user employs a private key to the hash to scramble it, thus producing a digital signature. The message, including the signature, is then sent to the intended recipient.

3. Using the author's public key, the recipient decrypts the signature to confirm who sent the message. Then, the recipient makes a second hash of the file with his own keys and compares it to the original hash to determine whether or not the message has been altered.

GRAPHIC BY ANNE GIANCOLA

As the designated Federal Information Processing Standard (FIPS) 186, the DSS will in December become a purchasing requirement for government users employing electronic data interchange, electronic mail and other applications. It is likely to be required of nongovernment users in future transactions with the government, such as tax filings with the Internal Revenue Service.

Government users planning electronic commerce efforts welcomed the decision, but few in industry believe that the technical and legal disputes haunting the DSS are over.

A public-key digital signature, like the one in the DSS, lets the user sign messages, verify the author and see if the message contents were tampered with before it was received across a net (see graphic).

When NIST three years ago proposed the DSS as a standard for unclassified information, industry expressed disappointment that the government overlooked RSA Data Security, Inc. technology.

RSA signatures and encryption are used in both International Standards Organization and Internet Engineering Task Force security standards. They are also deployed in applications and local-area network software products from AT&T, Lotus Development Corp., Microsoft Corp., Novell, Inc. and WordPerfect Corp., among others.

NIST later came to admit the top-secret development of the DSS by the National Security Agency (NSA). Although now formally a standard, the DSS is not truly finished since the NSA — acting through NIST — recently withdrew the Secure Hash Algorithm used in the DSS to correct flaws found in it.

A new hash algorithm, which AT&T and others in the industry have seen, is expected to be unveiled soon for another round of public comments. The hash function creates a message summary used for verifying the integrity of messages exchanged over a net.

The government's decision to approve the half-finished DSS likely stems from the need to assure users and vendors that DSS is still alive, although some users already have big plans for it. For example, the DSS will be used by over two million users of the Department of Defense's future E-mail network, the Defense Message System.

Larry Shomo, manager of electronic commerce infrastructure at the National Aeronautics and Space Administration, is also readying a DSS implementation. "We're putting in a security architecture using public-key signatures," he said.

NASA plans to use signatures in place of passwords for network access. In addition, NASA plans to switch to digital signatures from paper signatures next year in a new agency funds control system that will let NASA administrators authorize millions of dollars in funding for programs from the Office of Management Budget down to the project level.

Shomo noted that much more work needs to be done to make digital signatures work across agency boundaries and with the private sector. Standards to assure interoperability across the DSS products are needed, for example, he said. In addition, the government needs to set up a certification authority to ensure that public keys used to decrypt electronic signatures belong to the individuals claiming them.

Despite the government's declaration that DSS infringes on no known patents, the legal wrangling over DSS may not be over. Sources at both PKP and the government suggest that discussions are quietly continuing, with a possible settlement still to come. ☒

Lotus to open access to Notes via SQL

BY ADAM GAFFIN

Cambridge, Mass.

Lotus Development Corp. next month will move to open up its Lotus Notes groupware platform when it announces software to let users access Notes databases via non-Notes applications.

The software is designed to allow users to access Notes data by way of drivers that comply with the ANSI SQL and Microsoft Corp.'s Open Database Connectivity specifications.

Code-named Notes SQL, the new offering will initially be packaged with Lotus Forms, the company's recently announced electronic forms routing package, and with Visual Programmer, a Lotus application development tool announced last year. Both Forms and Visual Programmer are expected to ship within a month.

Notes SQL will also be incorporated into Lotus' Approach desktop database application, according to Peter O'Kelly, product manager for Notes application development.

Lotus is looking to sell the drivers by themselves, as well, he said. This would let Notes databases be integrated in other applications.

O'Kelly emphasized that the software is not a first step by Lotus to roll a relational database management system into Notes. The groupware product uses a nonrelational database designed for handling documents and related files, rather than for transaction processing, he said.

But Notes SQL is necessary in that there are companies reluctant to invest heavily in Notes because it is difficult to integrate the software with applications that run against other kinds of databases, said Brian O'Neil, senior applications specialist at Synetics Corp., a systems integrator in Wakefield, Mass.

Several vendors, including Powersoft, Inc. and Gupta Corp., have in recent months announced tools for building applications that can access data stored

See **Lotus**, *page 9*

WordPerfect reaches for enterprise with Symmetry

BY CHRISTINE BURNS
AND CARYN GILLOOLY

Atlanta

WordPerfect Corp. last week released a new, distributed version of WordPerfect Office that promises more efficient message handling and administration in a multivendor enterprise network.

With the new version, renamed WordPerfect Symmetry 4.1, administration and message delivery pieces are broken out into separate pieces that can run on distributed Novell, Inc. NetWare, Unix and OS/2 servers.

This architecture provides easier administration for the net manager, reduces net traffic and will let customers run a single product across a multivendor enterprise net.

"We're a hospital corporation with mainframes, PC nets and more, and we are using Symmetry as a way to add connectivity to all these systems without putting in a new backbone," said Larry DeWall, a programmer with HealthSpan in Minneapolis.

Symmetry 4.1 is an office automation application that comprises the Administration Server (ADS), Office Server (OFS) and Message Server (MS).

The ADS lets the administrator control the system from a central location. The OFS moves messages between the post offices and individual mail boxes, while the MS moves messages between post offices. Previously, the three pieces were bundled into one dedicated DOS- or OS/2-based server, while the different message store databases would reside on separate local-area network file servers. This meant a message sent from anywhere in the enterprise had to pass through the central WordPerfect Office engine, even if it was destined for a user on the same LAN.

With WordPerfect Symmetry 4.1, the ADS, OFS and MS pieces are designed to run on multiple LAN servers along with the message store database. Each server handles its own local message delivery and ships messages to other servers only if necessary.

In a NetWare environment, all three back-end services will become NetWare Loadable Modules (NML).

The Symmetry 4.1 NLM is compatible with the NetWare 3.X bindery and runs on a NetWare 4.X server in bindery emulation mode.

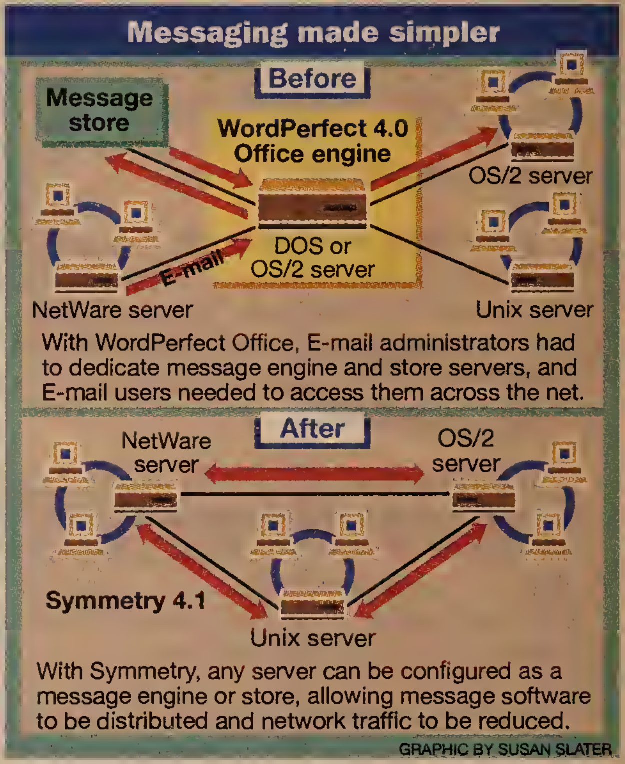
The company will not offer native NetWare Directory Service support until it ships Symmetry 5.0, the next major release that is due out next year. That release will also let clients access other messaging engines, via support for Microsoft's Messaging Application Programming Interface (MAPI).

"All clients will be able to access other servers, but cannot take advantage of as many services as they can with a Symmetry engine," said David Clare, senior director of workgroup applications at WordPerfect.

WordPerfect will offer simple MAPI support in its Windows clients, which lets a user send documents created under any MAPI application via Symmetry.

Users say the advantages of the distributed Symmetry 4.0 are ease of administration and speed.

Messaging made simpler



With WordPerfect Office, E-mail administrators had to dedicate message engine and store servers, and E-mail users needed to access them across the net.

With Symmetry, any server can be configured as a message engine or store, allowing message software to be distributed and network traffic to be reduced.

GRAPHIC BY SUSAN SLATER

"With 4.0, the messaging server handled all the administration functionality like adding and deleting users," said Don Bartley, senior systems analyst with Technical Services Corp. in Columbia, Md. "Now, with the functions separated out, all the processes are speeded up."

"I also like the new NLMs," Bartley continued. "With eight LANs, the overall throughput of messages on each LAN has increased by cutting down the amount of communication between the E-mail hub and the LAN. We saw a fivefold performance increase."

Analysts said NetWare users will benefit from Symmetry because it is the NetWare services to which WordPerfect plans to tie Symmetry most closely.

"It'll simplify administration, and it'll probably perform pretty well because they're distributing a piece of the message switch to every server," said Mike Rothman, an analyst at META Group, Inc., a consultancy in Westport, Conn.

WordPerfect also rolled out a variety of add-on products that users can buy to further enhance Symmetry 4.1. For example, the company released a total of 23 gateways that will help connect Symmetry to other mail systems through line X.400, the Simple Mail Transfer Protocol and cc:Mail, as well as to other types of services such as faxing and paging.

✆WordPerfect: (801) 228-5077.

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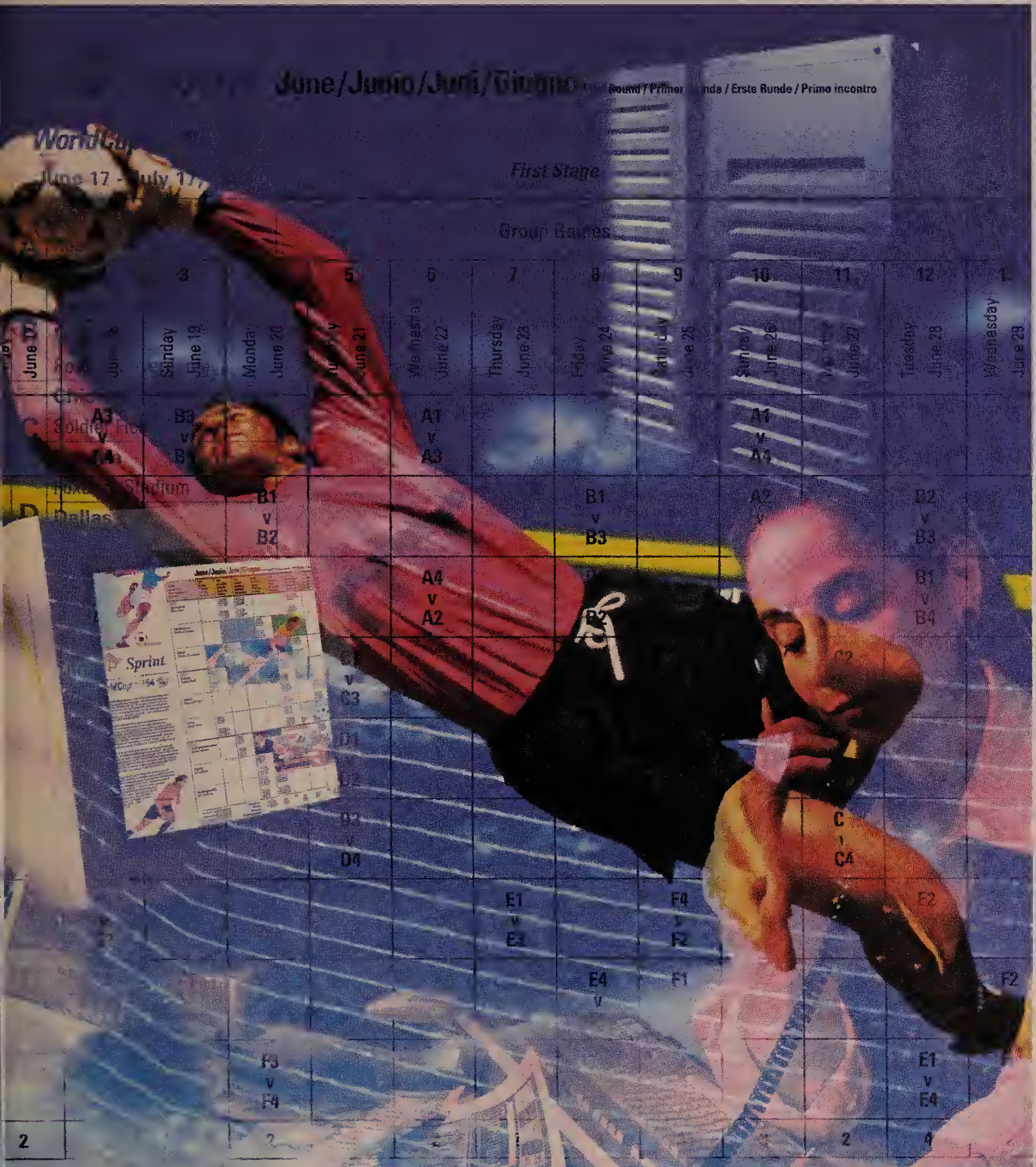

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NetWare support could help Windows NT's market position

Users say they won't trust Microsoft with NOS mart dominance.

BY CHRISTINE BURNS

Atlanta

Microsoft Corp. has begun to make inroads into Novell's market dominance simply by agreeing to play nicely with NetWare.

That was the consensus of users and analysts who participated in a roundtable discussion about Microsoft networking issues sponsored by *Network World* at Comdex/Spring last week.

Participants said Microsoft has packed Daytona — the next version of Windows NT and Windows NT Advanced Server — with enough connectivity features to position it as the application server of choice in a NetWare environment.

"With the move from LAN Manager NOS to Windows NTAS with native IPX support, coexistence between products has gone from damn near nonexistent, or at least expensive and cumbersome, to almost plug and play," said David Rorabaugh, systems operations specialist at a Washington, D.C. law firm.

"With Novell surrounded from all sides by Microsoft clients and application servers, people are going to start questioning why they have any NetWare running on their networks at all," Rorabaugh said.

Cheryl Currid, president of Currid & Co., a Houston-based consultancy, said Microsoft is in a strong position to make inroads on Novell's 60% share of the market as Novell tries to regain steady footing in the wake of acquiring WordPerfect Corp. "It's unclear as to whether Novell is going to be able to get its sealegs straight in order to stop a Microsoft assault."

Richard Morgan, general manager of Base One Network Technologies, a systems integration firm in Fort Lauderdale, Fla., said his customers worry about Novell's instability while marveling at Microsoft's profits.

"There is safety in numbers, and a $3 billion dollar company brings a lot of security," Morgan said. "There is money there to make technology investments and still be around in two years when the users are taking advantage of technology in action."

All agreed that Microsoft's assault on Novell will be a slow, steady march.

"From both a technology and a cost standpoint, this transition isn't going to happen overnight," said Arthur Tisi, chief systems officer for the Metropolitan Museum of Art in New York. Tisi is replacing 30 NetWare 3.X servers with Windows NTAS machines.

"On the most basic level, it's just an enormous task when you're talking about converting thousands of machines and retraining as many users," Tisi said.

At the museum, when it is time to upgrade an Intel Corp. 386-based NetWare server to a higher performing box, Tisi installs Windows NT on the new machine.

Despite Microsoft's potential for success with Windows NT, these users said they would not trust the company to maintain its ties with Novell should the tables turn in favor of Microsoft as the market leader.

"If the enterprise networking market share turns out to be 70-30 in Microsoft's favor, I think you'll see some of that anti-Novell hostility come back into Microsoft's strategy," Rorabaugh said.

"I worry about world dominance by Microsoft," Currid said. "Microsoft might, as in the past, just give you connectivity to [its own products] if the market doesn't keep the pressure on," Currid said.

POSSIBLE DRAWBACK

The panel unanimously agreed that a potential roadblock to Microsoft's success is that third-party support for mission-critical applications running on Windows NT has been very slow coming to market.

Tisi noted that smaller third-party application tools that help a network administrator manage a Windows NTAS network are plentiful due to Microsoft's Win32 application program interface strategy. Microsoft outlined the Win32 API and said it would support it in all future operating systems.

Tisi said he was drawn to Windows NT because of SQL Server for Windows NT and SNA Server for Windows NT and is in the process of replacing old NetWare servers with Windows NTAS.

He is planning to use both Hermes, Microsoft's systems management software, and Microsoft's Electronic Messaging Service mail engine when the products ship this summer.

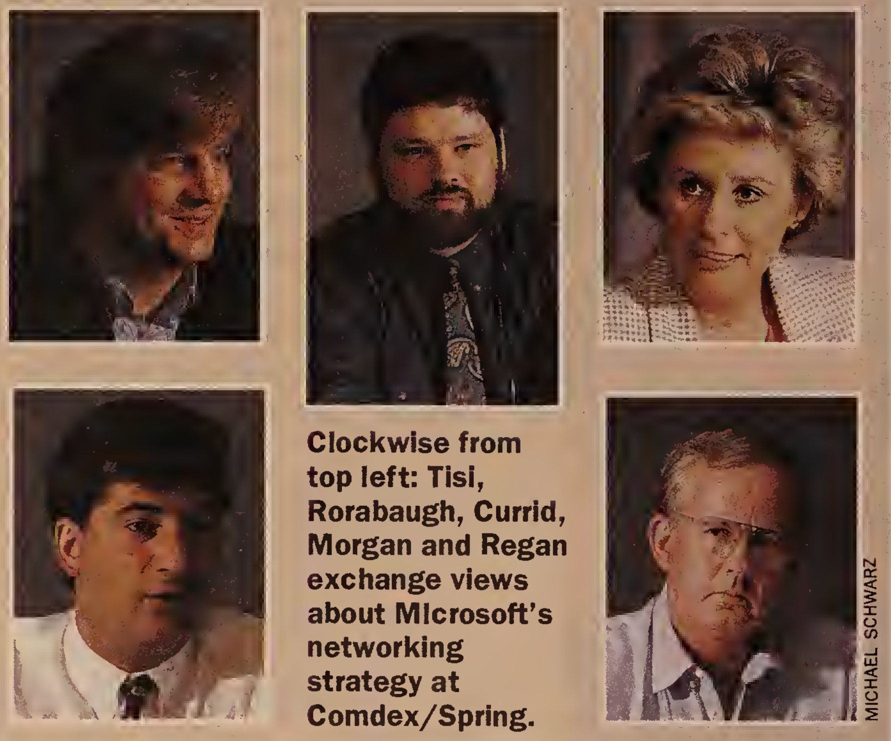
"But we're not going with NT in every corner of the enterprise until there are other larger, mission-critical applications — like a strong Unix-like financial application — that make a better business case for moving to Windows NT at a faster pace," Tisi explained.

Matt Regan, product manager for Windows NT, said while large financial application vendors have not ported their products to Windows NT, he expects second-tier vendors looking for market share will seize the opportunity Windows NT presents.

"There's no reason why Windows NT can't support these applications," Currid said.

"If a small company wants to grab some thunder from the big guys, I think Microsoft would even give them a hand." ☒

Roundtable discussion heats up



Clockwise from top left: Tisi, Rorabaugh, Currid, Morgan and Regan exchange views about Microsoft's networking strategy at Comdex/Spring.

MICHAEL SCHWARZ

Sybase steps into the multimedia product ring

BY KEVIN FOGARTY

San Francisco

Sybase, Inc. last week formally entered the war of multimedia product announcements by sketching out plans to deliver a network structure to deliver video- and voice-enabled applications.

The announcement pits Sybase against rivals Oracle Corp. and Microsoft Corp., both of which have recently unveiled plans to jump into multimedia with both feet.

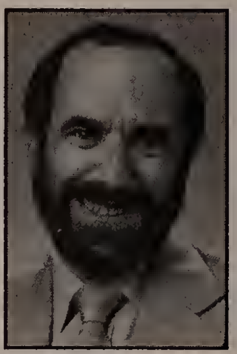
The Sybase plan, called Extended Enterprise, comprises three components: Intermedia Server is a traffic cop that will handle communications between end users and a video server; Gain Interplay, the client that will enable personal computers or TV set-top boxes to communicate with Intermedia Server and applications created in the third product Gain Momentum 3.0 an updated version of Sybase's multimedia application development tool.

In a video-on-demand application, for example, a consumer would use a set-top box to request a movie. Gain Interplay would send a message to the Intermedia Server, which would check its directories for the location of the movie and then send a message to the appropriate server with the request and the location to which the movie should be delivered.

The Sybase offering is "extremely weak," said Ray Lane, president of worldwide operations and executive vice president of Oracle. "They're taking stuff they've had lying around and put a coat of paint on it."

INTERESTED USERS

Gain Interplay and Intermedia Server are scheduled for OEM availability sometime during the second half of this year and will be generally available during the first half of next year. Some customers, however, are already using pieces of the architecture.



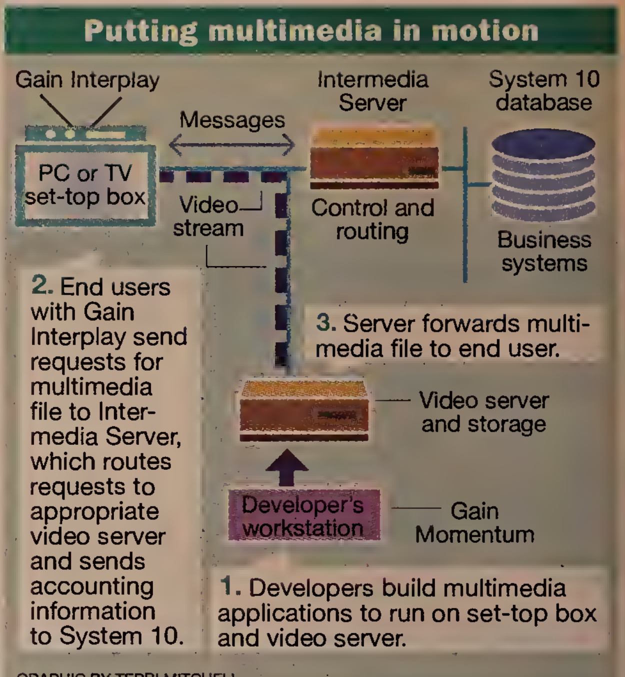
EPSTEIN

Los Alamos National Laboratory and the National Jewish Center hospital in Denver set up a video delivery system based on Sybase's Gain Momentum that is allowing radiologists to share X-ray images over networks so specialists do not have to travel.

Using Gain Momentum applications, two hospitals can exchange X-ray images over leased lines. They can also link to an X-ray repository at Los Alamos, which has a pattern-matching application to help radiologists at distant hospitals make diagnoses by allowing them to send X-ray images to Los Alamos and search for similar cases.

Other uses could include building training video into applications "so we can incorporate the training within the application itself," said Chuck Green, president of CIM3 Corp. in Chicago, which develops health care utilization review applications for insurance companies and hospitals.

Sybase will not provide an end-to-end multimedia delivery system. Instead, it will rely on third parties to supply video storage capability, as well as specific applications and services, said Bob Epstein, executive vice president of Sybase.


Putting multimedia in motion
Gain Interplay
Intermedia Server
System 10 database
Messages
PC or TV set-top box
Video stream
Control and routing
Business systems
2. End users with Gain Interplay send requests for multimedia file to Intermedia Server, which routes requests to appropriate video server and sends accounting information to System 10.
3. Server forwards multimedia file to end user.
Video server and storage
Developer's workstation
Gain Momentum
1. Developers build multimedia applications to run on set-top box and video server.

GRAPHIC BY TERRI MITCHELL

Sybase's most important contribution is the Intermedia Server, which will take information requests from clients, route them to the video server/video storage facilities, then direct the flow of data back to the client. On the back end, it will communicate with a relational database, either its own or a rival's, to track usage, accounting and data.

The company will make its multimedia architecture as open as possible for development by third parties by publishing application program interfaces for Gain Interplay and linking back-end applications to the Intermedia Server through its OpenServer middleware.

Epstein said Sybase is even willing to ally with Oracle, which announced plans in February to develop a series of products to deliver interactive tv to homes and businesses. "But Oracle has, in the past, been reluctant to supply us the specs when we've asked," he said.

The multivendor Sybase approach differs significantly from Oracle's plan by letting users choose best-of-breed products, Epstein added.

Oracle's Lane predicted that without some strong development efforts from Sybase, there would not be enough third-party development to make Extended Enterprise viable. ☒

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Vendors feud over objects

BY JOHN GALLANT

Atlanta

A top Lotus Development Corp. official last week said customers are facing major interoperability problems because Microsoft Corp. controls a key object linking technology — a charge flatly denied by a prominent member of the Windows NT development team.

John Landry, senior vice president and chief technology officer at Lotus, criticized Microsoft for refusing to join vendors developing OpenDoc, an object architecture for integrating applications.

"Interoperability of object embedding is a serious issue," Landry said during the Connectivity Plenary at Comdex/Spring here. "Yet OLE 2 [Microsoft's Object Linking and Embedding] is a renegade. The customer is going to get hurt on that. Vendors will write to [OpenDoc and OLE 2], but the customer will have a very difficult time [getting] interoperability."

Aaron Contorer, lead program manager, Windows NT networking at Microsoft, said the company will not participate in OpenDoc because OLE 2 already offers the same functionality.

"OLE is a successful open standard with hundreds of vendors supporting it," Contorer said. "OpenDoc is not worth doing. OLE does 90% of the things OpenDoc does, and it would be pretty easy to add the other 10% if vendors would get together with Microsoft. [OpenDoc] is a perfect example of vendors introducing a standard instead of leveraging an existing one, creating an interoperability problem.

Landry responded: "Customers will be hurt by the fact that they cannot take an embedded object in a document in your system and move it to an OS/2 or a Unix system of any variety."

He claimed that OpenDoc backers such as IBM and Novell, Inc. cannot cede control over object integration technology to Microsoft.

"[Microsoft has] a tendency, as in applications, to use this stuff in [their] own software before it is released to the public," Landry said. "Either this becomes a standard in the fullest sense of the word or it isn't going to work."

"I don't think anyone should cede control to Microsoft," Contorer responded. "But in cases where Microsoft happens to have deployed a working solution, companies should be compatible with that and build on that. I don't see a reason to rework OLE."

Asked whether Microsoft would consider handing OLE over to an open standards group, Contorer replied, "No. But I'll turn the specs over to anyone who wants them. If they want to write the code on new platforms, hey, that's awesome."

IBM delving deeper into objects to support NetView mgmt. platform

BY MICHAEL COONEY

Raleigh, N.C.

IBM is looking to add distributed object technology to its NetView family of network management platforms, a move analysts said could catapult Big Blue's management offerings ahead of its competitors'.

IBM executives confirmed that the company is moving forward on a plan to add its System Object Model (SOM) and Distributed SOM (DSOM) technology to NetView's Resource Object Data Manager (RODM), an object-oriented net management database. The move will help IBM make RODM compatible with NetView/6000 and LAN NetView, as opposed to just host-based NetView today, and promote management of multivendor resources from any NetView platform.

SOM is an object-oriented development environment that lets users develop object class libraries and programs. DSOM is the object request broker (ORB) for SOM that enables development of distributed object-oriented applications across multiple platforms. Both conform to the Object Management Group's Common ORB Architecture, which specifies standard application program interfaces for accessing ORB services.

"We expect that this technology could unify all our network management platforms and make RODM an operational repository for enterprise management," said Karl Gottschalk, a senior programmer with IBM's network management design group.

"IBM has floated the idea of a 'repository' before without any success, but this technology is real and would be a major step forward for managing multivendor enterprises," said Frank Dzubeck, president of the Communications Network Architects, Inc. consultancy in Washington, D.C. "The key to SOM and DSOM is that they are developed and shipping, so the implementation time with RODM shouldn't take long."

IBM declined to give any timetable for delivery of the new database.

"The idea is that most enterprise networking vendors — with the exception of Microsoft, which is developing a similar technology with OLE — would comply with SOM and DSOM and could freely exchange net and systems management data," Dzubeck said.

"The ultimate goal of RODM and its corollary applications is management of the entire enterprise, whether it be distributed or hierarchical."

— Karl Gottschalk

Vendors could build objects on top of SOM that define how to manage their devices or resources. DSOM would ensure that these objects are accessible from any compatible management platform.

With SOM and DSOM in RODM, users could partition management data and distribute control points throughout their nets, said Tom Nolle, president of the CIMI Corp. consultancy in Voorhees, N.J.

"It legitimizes the concept of having different platforms manage different environments," Nolle said, because object technology makes it easier to define resources and share data among systems.

"SOM and DSOM will make RODM very DME-ish," added Dzubeck. The Distributed Management Environment, is the Open Software Foundation, Inc.'s (OSF)management architecture for vendor-neutral distributed network and systems management.

In fact, IBM has said DSOM will in the future incorporate directory, security and other technology from the OSF's Distributed Computing Environment, further enabling DSOM-based products to support multivendor enterprise management applications.

Analysts said IBM has advantages over competing object-oriented management vendors such as Hewlett-Packard Co. or NetLabs, Inc. because SOM supports multiple programming languages, and applications do not have to be recompiled every time the user wants to modify the object.

IBM also has management products for both the legacy Systems Network Architecture world and Transmission Control Protocol/Internet Protocol environments, whereas HP or NetLabs products are geared toward the TCP/IP environment only.

Users already deploying RODM liked the idea of incorporating SOM and DSOM.

"We expect that all enterprise network management products from IBM will use RODM and object-oriented techniques in the future," said Alan Debevec, an advisory programmer with the Integrated Systems Solutions Corp.'s Southeast regional office (see story, page 1).

"The addition of SOM and DSOM technology will make it easier to define SOM-compliant multivendor devices to RODM and, consequently, make them easier to track and manage," Debevec said. "We also expect that SOM and DSOM will make it easier to customize our network management model."

CyberSpeak: *Voices from the reader network*

Do you have any privacy concerns as a result of an FCC ruling on caller ID that preempts state regulatory authority and bans per-line call blocking?

◆ "I object to the FCC action. I have serious concerns about caller ID and have gone to some lengths to make sure my phone number gets limited distribution. I have installed the per-call blocking code as a prefix in my Windows Cardfile dialer. I use this whenever I call a commercial concern that I haven't given my home number to. Per-line blocking (which is not yet available in my area) would be an excellent option. I don't want my phone number to get wide distribution, I get too many 'cold-contact' business calls already. I can barely stand having a bell in my house, which anyone in the world can ring . . . I prefer not to give the world the number at the same time!"

Ric Loll, president, TechnoMage Consultants, Scott AFB, Ill.

◆ "No. On the other hand, I do object vehemently to the state constantly 'protecting me for my own good.' I have yet to see any 'protection' or 'good' derived from their programs. I for one would like to know where the call is originating from when I get one of those computer sales pitches."

Tony Podrasky, systems support engineer, Convex Computer Corp., San Diego

◆ "My strong belief is that my personal privacy will be enhanced by technology allowing me to have an electronic peephole in my electronic door so I can see who is knocking *before* I open it. I fail to see how it invades anyone's privacy for me to see who they are before I open the door to them; if they don't want me to know who they are, then don't knock on my door (or dial my number)."

Larry Nebel, chief executive officer, United Electronic Printers, Inc., Fremont, Calif.

◆ "My level of concern is always heightened whenever a federal agency usurps or limits the rights of states to self government. Whether it is gun control, abortion or caller ID blocking, states should be able to regulate themselves without interference from the federal government."

John Rushing, senior system engineer, Perle Systems, Inc., Westmont, Ill.

◆ "Privacy concerns? You bet. First some states and now the federal government want to trash my privacy rights. Why should I be required to permit unwanted, uninvited, intrusive people into my home by telephone? Just because I have a door into my home doesn't require me (as of now, anyway) to admit every uninvited stranger who knocks on my door."

Bob McLeran, project manager, U.S. Navy JAG, Alexandria, Va.

◆ "Given that the caller's ID will always be known to at least one other party other than the caller (the carrier or carriers), I see no good reason for the FCC to overrule state's authority. The Feds can have access to that information if they really want it."

Tracy Collins, hardware engineer, Cisco Systems, Inc., Menlo Park, Calif.

◆ "I have followed the debate over caller ID/ANI for the last several years. I do not understand the position that it is an invasion of the caller's privacy to pass on information that allows the party being called to identify the calling party.

"It is an invasion of my privacy to allow anyone to come banging into my home without first identifying himself."

Steve Porter, technical analyst, Wang International, Memphis, Tenn.

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AT&T, other telecom carriers unite to offer global services

BY JOANIE WEXLER

Dallas

WorldPartners Co., an international carrier joint venture that includes AT&T, next month will announce integrated virtual network, frame relay and private-line services linking the U.S., Japan and Singapore.

Member companies said as more carriers join the WorldPartners Association, which WorldPartners Co. runs, services will run seamlessly throughout those members' nations, as well. WorldPartners hopes to have carriers from 25 countries in its association offering services under the brand name WorldSource by the end of 1995, a spokesman said.

For example, Telstra OTC Australia, which became a WorldPartner member last week, and New Zealand's international telephone company, which joined in March, will likely be next up to blend their services into the network.

Global telecom menu

Service	Description	Availability
Frame relay	Port speeds range from 56K to 2M bit/sec; PVCs from 4K to 2M bit/sec; and local access from 56K to 2M bit/sec, including fractional T-1.	Oct. 1
Virtual net service	Global management service linking virtual private nets of member carriers for integrated provisioning and maintenance.	July 1
Dedicated lines	Three options: •Standard — 56K to 2M bit/sec with a 99.6% minimum uptime. •Switched backup — 56K bit/sec with a 99.9% minimum uptime. •High-performance — 56K to 2M bit/sec with a 99.7% minimum uptime.	3Q or 4Q

GRAPHIC BY TERRI MITCHELL

Members of WorldPartners, a joint venture between AT&T, Singapore Telecom and Japan's Kokusai Denshin Denwa Company, Ltd., told *Network World* about the firm's plans at the International Communications Association show here last week.

Meanwhile, 6-month-old Eunetcom, the pan-European joint venture between France Telecom and Deutsche Bundespost Telekom, last week launched a package for U.S.-based companies looking for the same level of service in Europe as in the U.S.

The carriers connect Amsterdam; Brussels, Belgium; Frankfurt, Germany; London; Madrid, Spain; Milan, Italy; New York; and Paris via 2M bit/sec links over a new fiber infrastructure. Frame relay and circuit-switched services will be commercially operational in July, said Hugues Ferreboeuf, Eunetcom's vice president of strategic marketing.

In addition, Eunetcom's first Asynchronous Transfer Mode (ATM) pilot will be turned on in July, and commercial ATM service at 34M bit/sec speeds will be available in early 1995.

"These [global carrier services] could be interesting because I want one big cloud of a network," said Albert Albano, group telecommunications manager at Glaxo Holdings, p.l.c. in Greenford, England, who attended last week's show.

The pharmaceuticals maker has operations in 71 countries. "Today, you have to go from country to country yourself to provision service that is largely inconsistent," Albano said.

WorldPartners was founded one year ago with the goal of providing a cohesive set of service features and net performance, management and reliability guarantees around the world.

Global virtual private networks across the U.S., Singapore and Japan will be the first united WorldSource service, and it will become available in July. Dubbed WorldSource Virtual Network Service, the offering will link the virtual private networks of WorldPartner members under a common management, peformance, provisioning and maintenance umbrella.

As with all forthcoming WorldSource services, customers may contact any one of the member telephone companies to turn on WorldSource service.

"What this means to U.S. companies is, basically, that they can get the AT&T level of service internationally," said Daniel Briere, president of TeleChoice, Inc., a consultancy in Verona, N.J.

He added that to date, users have only had switched digital services and private lines available for local network interconnection internationally.

"Frame relay is generally more economical," he said, though heretofore users have had to provision separate frame relay nets in different countries — where available — all billed and managed separately.

The WorldPartners venture is also expected next month to announce the selection of a European partner, though analysts are divided as to whom that partner might be. A U.K. carrier, such as Mercury Communications, Ltd., is one candidate since the U.K. is home to about 18% of the world's multinational companies, according to some analysts.

Eunetcom has also been named a potential WorldSource partner, although "we don't forsee another strategic partner," Ferreboeuf said.

IBM demos data mining app

BY KEVIN FOGARTY

San Francisco

IBM last week demonstrated a new application for finding and extracting connections between data — such as buying patterns — stored in multiple databases across a network.

The application initially runs against IBM's DB2/6000 relational database but may eventually work with other SQL databases.

IBM is referring to the application, which is at least a year from release, as Data Mining. The company demonstrated a prototype at the DB/EXPO '94 conference here last week.

"Right now, [Data Mining is] a technology, not a product," said Janet Perna, director of database technology for IBM. "It may be a component of another product. It's hard to tell how we will end up shipping it."

ALMOST BETA

Perna has also not yet considered how much to charge for the application, although IBM is offering some customers Data Mining as a service at no cost to help focus its development efforts. The product will enter formal beta testing late this year or early next year, she said.

The application is designed to identify patterns in large databases by sifting through them and identifying transactions that seem to take place together. It then rates the patterns according to how often related incidents occur together.

A department store's flat-file database, for example, may contain data on millions of purchases recorded by point-of-sale systems. By comparing the times the purchases were made with the items involved, Data Mining may discover that 98% of the time when customers buy tires, they also buy automotive service.

The store can use that information to better focus marketing plans, according to IBM.

The application is currently configured to run on AIX-based RISC System/6000 servers linked to Windows clients. It is written in C++ and is easily portable to other platforms, including OS/2, MVS and, potentially, non-IBM platforms, IBM staffers said. Its analytical processes run on a server, which then delivers a frequency report to a client system.

Bells to battle in LEC mart

BY BILL BURCH

Washington, D.C.

Businesses looking for an alternative to the local telephone company in Bell Atlantic Corp.'s mid-Atlantic territory may soon have a new option — Southwestern Bell Corp.

Southwestern Bell, the primary local exchange carrier (LEC) in the Southwestern U.S., has been given the go-ahead by Maryland's Public Service Commission to offer phone service in Montgomery County, Md., via a cable television network owned by one of its subsidiaries.

Initially, Southwestern Bell plans to offer phone service over the CATV net — owned by SBC Media Ventures, Inc. — to 320,000 homes. Following that, Southwestern Bell plans to upgrade Cable TV Montgomery's net to provide expanded video services, said John Eddy, president of the CATV company.

The firm will then offer basic phone services to small businesses, according to Ed Reisner, vice president of new services development at SBC Media Ventures. The carrier has no plans to offer Centrex, 800 services, private lines or other advanced services initially because of limited switch capacity, he said.

In all, Southwestern Bell expects to pump more than $100 million over the next five years into its cable network to provide phone service over it. Technical details of the network upgrade are still being worked out, a company spokeswoman said.

Southwestern Bell bought the Montgomery cable system, as well as a second one in Arlington, Va., in February 1993. The company spokeswoman would not say whether the carrier has plans to offer phone services via the Arlington cable system.

CABLE COMPETITION

Other cable operators also have their eyes on the local phone market here. Jones Intercable, Inc., for example, is testing phone service over its Alexandria, Va., cable system. If statutory and regulatory barriers are removed, a company spokeswoman said Jones could offer both business and residential phone services in a matter of months.

Southwestern Bell's announcement also follows a ground-breaking agreement this month between Time Warner, Inc. and Rochester Telephone Corp. under which they will link their respective CATV and phone networks (*NW*, May 23, page 9).

With their plans to compete against the LECs, the cable companies are following somewhat in the footsteps of competitive access providers (CAP). In some areas, CAPs and CATV companies have started to form alliances. They hope to leverage each others' strengths: the CAPs' telecommunications experience and downtown coverage, and the cable companies' entertainment expertise and suburban focus. To cover an entire metropolitan area, the two camps have realized that joint ventures make sense.

"If you're going to provide service to both communities, there's a natural synergy," said Gary Lasher, chairman of the Association for Local Telecommunications Services and president of CAP Eastern TeleLogic Corp. in King of Prussia, Pa.

Lotus

Continued from page 3

both in Notes and other databases.

Developers will be able to use Notes SQL to extract information for such applications as report writers, which will let end users analyze Notes data in ways not possible within Notes itself, O'Neil said. The drivers will also let non-Notes users update Notes databases, he said.

Terrence McCarthy, managing director of Neoteric, Inc., a New York systems integrator, said most of the demand he sees is for better tools for Notes users trying to access data in legacy systems, rather than for tools that let non-Notes users get into Notes databases.

John Murphy, director of telecommunications at The Travelers Insurance Co. based in Hartford, Conn., agreed. Because the telecommunications division has settled on Notes as an application platform, it is more concerned with getting relational data into Notes, he explained.

But until every Travelers employee gets Notes — currently about 1,100 have it on their desktop — it might be nice to have a way to give them access to information within a Notes database, Murphy added.

©Lotus: (617) 577-8500.

Notes-database integration options

DataLens - Drivers that give Notes clients read-only access to SQL database servers. Available now from Lotus.

◆

Notes SQL - Code name for ODBC-compliant software from Lotus for giving non-Notes applications access to Notes databases. Will be announced in June.

HP extends PerfView to monitor networks, apps

BY JIM DUFFY

Roseville, Calif.

Hewlett-Packard Co. last week unveiled a new version of its performance management software that allows users to monitor the operation of systems, databases and applications, as well as the networks over which they run or are attached.

Previously, HP's PerfView was designed only for monitoring the performance of Unix systems as an application on HP's OpenView management platform. But PerfView 3.0 can run on Unix hardware as a stand-alone performance management system for networks, databases and applications, as well as systems.

To accomplish this, HP has added technology to PerfView, called Data Source Integration (DSI), that allows users to monitor the performance of any resource in a distributed computing environment.

DSI agent software will run on managed resources across a net and send alarms to PerfView management consoles when user-defined performance thresholds are exceeded.

Through a remote procedure call (RPC), the console will then instruct DSI agents to send raw performance data to it. PerfView will filter out irrelevant performance data and then summarize relevant data, time-stamp it and log it in to system memory.

With this information, PerfView operators can graphically correlate performance data across the distributed environment and gauge the interaction of networked resources and the impact they have on one another. Operators can then balance loads among diverse computing resources, which should result in optimized service to end users, HP officials said.

Mead Data Central is using PerfView 3.0 to monitor the interaction between its MVS mainframes and Unix servers as it migrates to a distributed client/server environment.

"We're bringing all the data together from multiple MVS and Unix systems into the same analysis environment," rather than monitoring the systems using separate products, said Daniel Hursh, a staff engineer in product integration at Mead. That data includes statistics from Open Software Foundation, Inc. Distributed Computing Environment directory servers and security servers, he said.

Analysts said HP's DSI technology, for the time being, is unique even though IBM and LEGENT Corp. are working on something analogous to it with its Systems Monitor Architecture (SMA) Mercury agents (*NW*, March 7, page 1).

"IBM and LEGENT [technology] will do similar things, but until they actually produce a product, I can't say how it compares," said John McConnell, president of McConnell Consulting, Inc. in Boulder, Colo.

"[DSI] comes closest [to SMA], but I don't think anybody has the ability to import the information as HP appears to," said Charlie Robbins, director of data communications research at Aberdeen Group, Inc. in Boston.

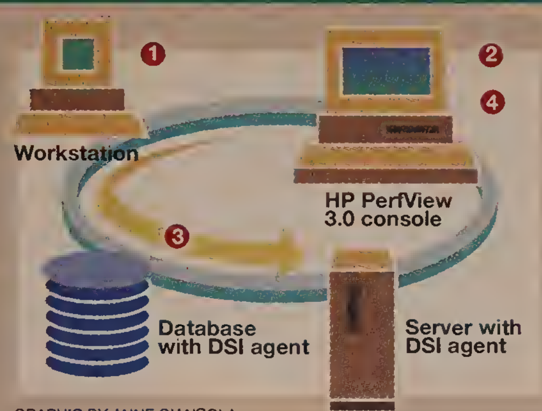
Observers also noted that the two products are architecturally distinct; PerfView uses an RPC, whereas SMA relies on Simple Network Management Protocol polling.

Meanwhile, for more comprehensive and automated systems management functions, PerfView 3.0 can be integrated with HP's OperationsCenter application. OperationsCenter, which runs under OpenView, initiates remedial action by launching applications through manual intervention or via automated script files.

Bundled with OpenView, PerfView 3.0 costs $26,000. As a stand-alone product, it costs $11,000. The software will be out in June.

©HP: (800) 752-0900.

Gauging performance



GRAPHIC BY ANNE GIANCOLA

❶ Workstation-based application suffers performance degradation, which...

❷ ...sends an alarm to PerfView 3.0 console.

❸ The console operator then requests performance data from the application and workstation as well as from other network resources that might have been affected. The data is...

❹ ...filtered, summarized, time-stamped and logged. It is graphically displayed to correlate events with performance and to determine if balance loading is needed.

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Alpha version of DECnet/OSI comes up to speed with VAX

Includes support for X.25 and WAN device drivers.

BY JIM DUFFY

Maynard, Mass.

With this month's release of DECnet/OSI 5.7 for OpenVMS AXP, users of Digital Equipment Corp.'s Alpha hardware now have DECnet/OSI software that is functionally equivalent to VAX versions.

The new product runs under OpenVMS AXP 6.1 — the most recent version of OpenVMS for Alpha systems — and lets users configure Alpha workstations and servers as end systems in a DECnet/OSI net. The software also features the same X.25 and network device driver support found in VAX versions of DECnet/OSI, which means Alpha users are now equipped to link to X.25 packet nets.

"Version 2.0 [of DECnet/OSI for OpenVMS AXP] was a LAN-only version, so it did not include the X.25 features and the WAN device drivers," said Judy Cross, Digital's DECnet/OSI product manager. "Those features have been included in 5.7."

Though support for X.25 is built into DECnet/OSI 5.7 for OpenVMS AXP, the ability for those nodes to actually share data with Digital and non-Digital hosts via X.25 is available through a separately licensed product.

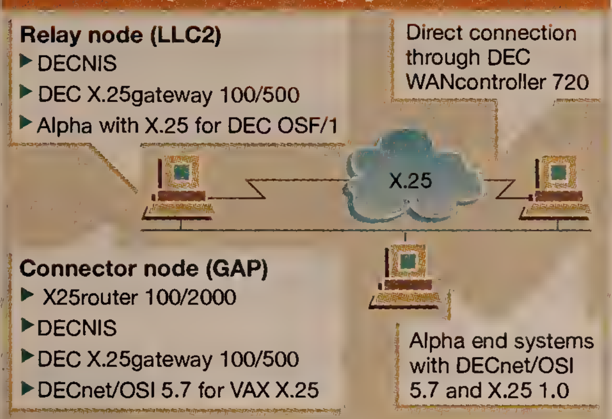
That product, X.25 1.0 for OpenVMS AXP, runs as a layered application on DECnet/OSI 5.7 for OpenVMS AXP nodes, allowing them to make direct or logical connections to X.25 packet-switching networks.

For direct connections, the software will support DEC 3000 workstations, which have an integral synchronous/asynchronous port, and TurboChannel-based Alpha systems equipped with Digital's WANcontroller 720 network interface card.

Logical connections can be made through what Digital calls connector nodes and relay nodes (see graphic).

Connector nodes serve as gateways between DECnet local-area networks and X.25 packet nets, and use Digital's Gateway Access Protocol to forge links from DECnet network applications to the gateway.

Any which way you can


Relay node (LLC2)
▶ DECNIS
▶ DEC X.25gateway 100/500
▶ Alpha with X.25 for DEC OSF/1
Direct connection through DEC WANcontroller 720
X.25
Connector node (GAP)
▶ X25router 100/2000
▶DECNIS
▶DEC X.25gateway 100/500
▶DECnet/OSI 5.7 for VAX X.25
Alpha end systems with DECnet/OSI 5.7 and X.25 1.0

Alpha-based DECnet/OSI 5.7 end systems can now connect to Digital and non-Digital systems via X.25 packet networks through DECnet connector nodes, OSI LLC2 relay nodes, and direct synchronous and asynchronous attachments.

GRAPHIC BY TERRI MITCHELL SOURCE: DIGITAL, MAYNARD, MASS.

Connector nodes include Digital's X25router 100 or 2000, DECNIS routers, DEC X.25gateway 100 or 500 and DECnet/OSI 5.7 for OpenVMS VAX systems configured with appropriate X.25 software.

Relay nodes also serve as DECnet-to-X.25 gateways but use the Logical Link Control 2 protocol to send LAN packets to the gateway. Relay nodes include Digital's DECNIS routers, X.25gateway 100 or 500 and an OSF/1-based Alpha system running X.25 for DEC OSF/1 software.

Other features of DECnet/OSI 5.7 for OpenVMS AXP, meanwhile, include support for Distributed Name Service (DECdns) clients and Distributed Time Service (DECdts) clients and servers. DECdns is a global node naming and directory system for DECnet/OSI nets, and DECdts is a DECnet/OSI time synchronization system.

Digital does not allow users to configure OpenVMS-based Alpha systems as DECdns servers because the company is developing "more innovative naming work on the Alpha systems," Cross said. She would not elaborate.

This has been disappointing for some users who need a souped-up system to serve as a "master" DECdns server, which holds copies of name and address tables for the entire DECnet/OSI network.

"As our DECdns system is growing, we were looking at moving the master node to a larger server, and Alpha was suggested for that work," said Scott Davis, senior systems programmer at Bechtel Corp. in San Ramon, Calif. "I was kind of leaning that way until I found out you couldn't run it as a [DECdns] server."

Davis believes Digital will allow Alphas to be configured as naming and directory servers when the company migrates DECdns to X.500.

Digital did not disclose pricing for DECnet/OSI 5.7 for OpenVMS AXP or X.25 1.0 for OpenVMS AXP, although both products are available now.

©Digital: (800) 344-4825.

The whole desktop videoconferencing market is just putting along; there's a great deal of discussion, but little real deployment by users."

John Walsh
President
CLI

CLI set to resell Intel's ProShare

BY ELLEN MESSMER

San Jose, Calif.

Compression Labs, Inc. (CLI) last week said it is abandoning its effort to produce a Windows-based desktop videoconferencing system, opting instead to resell Intel Corp.'s ProShare Video System 200.

John Walsh, president of CLI, called Intel's ProShare a superior product to the one his own company was developing for collaborative editing of Windows documents during a desktop videoconferencing session. In addition, Walsh said CLI will work to link ProShare's proprietary Indeo videoconferencing system to CLI's larger room systems so the two will work together.

"Our product was just not as good as it could be," Walsh said. "In addition, Intel has a much more aggressive marketing plan for the Windows environment."

CLI will continue to sell its Cameo desktop conferencing product for the Macintosh.

The company's decision to ditch its work on a Windows desktop video system comes in the wake of a recent $2 million cash infusion from Intel. Intel also recently made an investment of $7 million in another videoconferencing company, VTEL Corp., enough for a 10% stake in the firm.

These investments reflect Intel's determination to seize a foothold in the nascent desktop videoconferencing market through alliances with more-established video coder/decoder manufacturers, said Ajit Kapoor, president of Marshfield, Mass.-based consultancy, Intelligent Solutions, Inc.

Intel released its first video product, ProShare, this spring. It permits users to share a copy of a document or file across a network. The company is expected to release ProShare Premiere Edition next month, which will let multiple users edit a document simultaneously.

Intel is also leading an industry consortium to create an open specification for desktop videoconferencing. It said the group will release the specification by year end.

Michael Bruck, director of marketing at Intel's personal conferencing technologies division, said the spec will likely include some of the International Telecommunication Union (ITU) T.120 data-sharing standards (*NW*, May 25, page 23) but will probably go further.

"The specification will be open, and our products will have to be modified in order for them to be compliant," explained Renee James, product marketing manager for Intel.

BRIEFS

Bull HN Information Systems, Inc. has added global security services features to its **Integrated Systems Management (ISM)** networks and systems management platform.

The features support identification and authentication of the desktop user and provide a single sign-on to all networkwide applications and services. In addition, the services allocate network usage privileges to users and offer net managers a single point of control for user registration, administration and customization of profiles.

The security services are included in Version 3 of ISM and start at $22,000.

Bull: (508) 294-6000.

Help desk software developer **Answer Systems, Inc.** — formerly known as **Answer Computer, Inc.** — has been awarded a patent on its problem-resolution technology, Bubble-Up.

Bubble-Up is the underlying technology in Answer's flagship help desk system, Apriori. Bubble-Up filters out and displays the top 10 most current solutions for network and systems problems based on inferences from previous problem-resolution cases.

Separately, Answer announced that it has signed on five new customers, including British Airways PLC, Cargill, Inc., Kellogg Co., Prudential Securities, Inc. and Walgreen Co.

Answer: (800) 677-2679.

Mainframe manufacturer **Hitachi Data Systems** has announced a statement of direction to migrate its customer base to open **client/server computing.**

The plan involves developing mainframe-class servers that include a "hybrid" bipolar and CMOS chip design, a pure CMOS uniprocessor architecture and a parallel CMOS design. The company's strategy also includes adoption of the IBM, Motorola, Inc. and Apple Computer, Inc. Power/PC architecture for Reduced Instruction Set Computing, enhancing its OSF/1-based operating system for parallel processing, and support for the C++ and COBOL programming languages.

Hitachi Data Systems: (408) 970-1000.

Proteon, Inc. last week announced that it was awarded $1.2 million as part of the recent resolution of a patent infringement case.

The American Arbitration Association ruled that Proteon's token-ring products do not infringe on the widely licensed **Soderblom patent** (U.S. Patent 31,852). The award, which represents a refund of certain license payments previously paid by Proteon, will be included in the current quarter's earnings.

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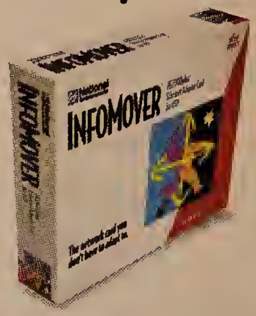

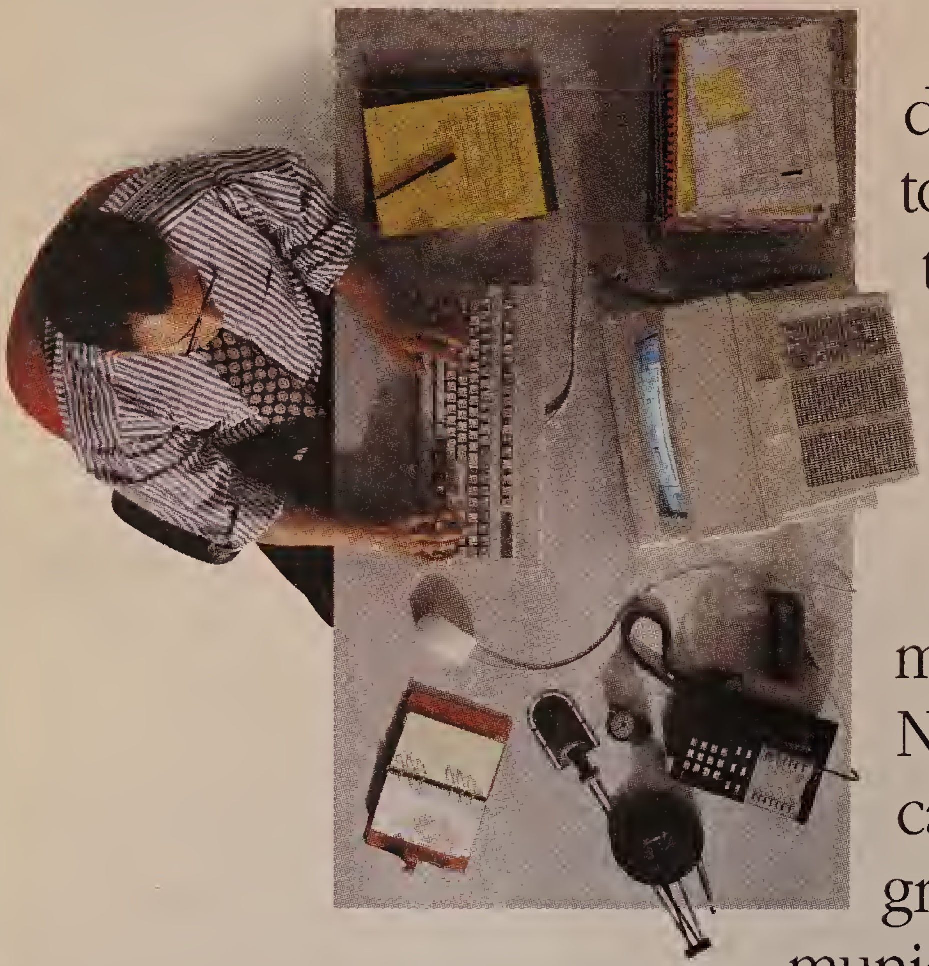

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Motorola offers inexpensive frame relay access devices

BY MICHAEL COONEY

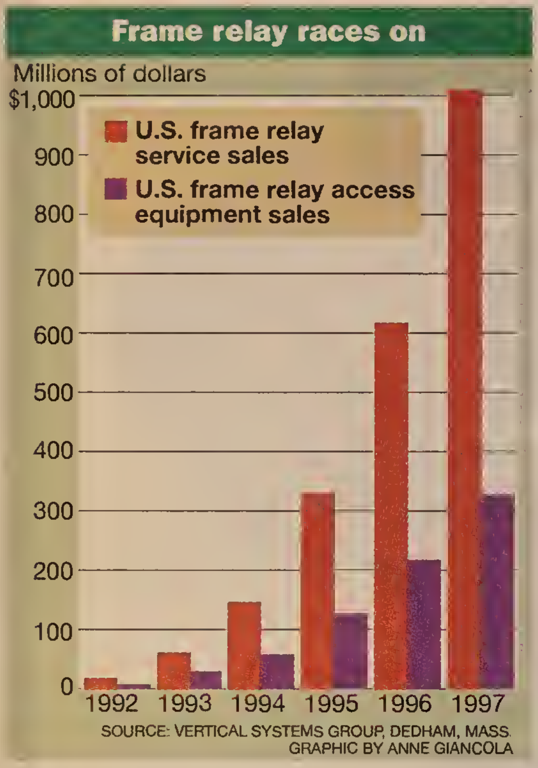
Mansfield, Mass.

Motorola, Inc.'s Information Systems Group (ISG) last week announced a series of new and improved frame relay access devices for remote office users.

The firm added a new software release, Version 4.1, for its 6500 Plus router, enabling the device to support more than 30 legacy protocols in addition to the Transmission Control Protocol/Internet Protocol and Systems Network Architecture protocols already supported.

ISG also delivered a new family of low-end Frame Relay Assembler/Disassembler (FRAD) with an integrated data service unit designed to support virtually any protocol.

"With this round of products, we are trying to give remote users with mixed traffic environments inexpensive access to frame relay-based backbones," said Thom VanHorn, marketing manager for ISG.


Frame relay races on

SOURCE: VERTICAL SYSTEMS GROUP, DEDHAM, MASS.
GRAPHIC BY ANNE GIANCOLA

Key to the new software release for the 6500 is a feature called Frame Relay Access Multiplexing Element (FRAME). FRAME lets the 6500 gather 30 types of serial data traffic — for example, asynchronous, bisynchronous, Synchronous Data Link Control and nonstandard protocols such as the Burroughs Poll Select — and mix them with TCP/IP, VINES, DECnet and other routable protocols on the same frame relay pipe.

The 6500 sits between a traditional router and the frame relay access line. Serial devices attach to the 6500, which mixes the serial traffic with local-area network data coming in through the router.

A base 6500 comes with three access ports, which can be configured to support one T-1 link for wide-area connectivity and two LAN or serial ports. The box can be expanded to a maximum of 50 ports, which can be configured to support multiple T-1s and serial or LAN ports, VanHorn said.

"The 6500 with FRAME support gets rid of a big headache for router users in that it guarantees delivery of SNA and legacy protocols that routers don't generally even support, while at the same time, allowing [that data] to flow with the LAN traffic," VanHorn said.

Pete Guevara, supervisor of network services with Florida Informanagement Services, Inc., an Orlando, Fla.-based financial services firm, said his company chose the 6500 because it supported nonstandard protocols.

"We couldn't find any routers that could support all of the serial traffic we have coming from Burroughs, Tandem and Unisys mainframes," Guevara said. "Plus, the 6500 polls all of those devices so that traffic isn't hitting our WAN."

But he noted that the 6500 falls short in terms of network management. "It doesn't have an SNMP agent, so our HP OpenView platform can't see or control it yet," according to Guevara.

ISG is expected to include Simple Network Management Protocol support later this year.

In addition to FRAME, ISG added support for a priority control feature that lets users send serial data ahead of LAN traffic. It also added support for Novell, Inc.'s Internetwork Packet Exchange (IPX) protocol and transparent bridging.

Also, ISG added its first three-port FRAD device. The ports can be configured to support any combination of the 30-plus protocols ISG supports in the 6500. The ISG FRAD encapsulates the serial traffic in frame relay packets and sends them over the frame relay net to another ISG FRAD, which strips off the frame relay packet and passes the data to its proper destination.

Version 4.1 for the 6500 Plus will be ready in June for $3,000. The FRADs are available for $1,299.

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Stampede bulks up remote access software

Support for token-ring and NetWare NLM environments leads improvement list.

BY SKIP MACASKILL

Dayton, Ohio

Stampede Technologies, Inc. last week bolstered its remote access server offering by adding support for token-ring environments as well as a suite of network administration features.

The company also announced an OEM deal with Rockwell Telecommunications, which will wrap Stampede's Remote Office client software into new hardware platforms to provide small branch offices and mobile users with access to corporate enterprise networks.

TOKEN-RING SUPPORT

In Version 3.1 of Remote Office, Stampede will support token-ring local networks based on IBM's line of Token-Ring adapters as well as other network interface cards based on the Tropic chipset. Previously, Remote Office only supported Ethernet networks.

Remote Office runs on a nondedicated personal computer and provides dial-in/dial-out user-to-LAN or LAN-to-LAN connectivity, allowing individual mobile users or LAN users in small branch offices to access resources on a corporate network.

The software can support from two to 32 remote connections simultaneously and is compatible with Novell, Inc. NetWare, Microsoft Corp. LAN Manager and Windows for Workgroups, Artisoft Corp. LANtastic and Banyan Systems, Inc. VINES environments. A client portion runs on the PCs that interact with the server.

In addition, Version 3.1 adds support for the Point-to-Point Protocol, allowing Remote Office to connect to conventional routers, dial-in routers such as Rockwell's NetHopper or Xyplex, Inc.'s access server line.

NETWARE 4 COMPATIBILITY

Stampede has also made Remote Office compatible with NetWare 4 environments by including support for NetWare Virtual Loadable Module (VLM) clients and installation drivers that have been pretested and approved by Novell.

Once installed on the remote PC, the VLM software updates all the Microsoft Windows directories and systems files, eliminating the need for a net administrator to be on-site in order to configure Remote Office.

Other new features include an autoreconnect feature that will redial and reestablish a remote network connection if a link is lost.

On the host side, Remote Office now supports line usage screens that show how long users have been logged on to the corporate network as well as the time remaining on their connection — a limit that is preset by the network manager.

Additionally, a new Windows-based utility has been included in the client side that tracks the status of internal or PCMCIA-based mo- dems at each remote PC that is communicating with a Remote Office server at the corporate LAN.

Remote Office stampedes ahead with the following enhancements:

- An autoreconnect feature
- A Windows modem utility
- Line usage screens

And support for:

- Token rings
- Point-to-Point Protocol
- NetWare VLM clients

Joe Shoemaker, network administrator and a Remote Office 3.1 beta user at Howard Industries, Inc. in Laurel, Mich., said that he was pleased with the new token-ring and VLM support.

"We use an earlier version of Remote Office to support the small amount of Ethernet we have installed, but we're largely a token-ring shop, so I'll be able to use the product more extensively now," Shoemaker said. "Our intended direction is to move to NetWare 4, so the added VLM support also positions the product for our future needs."

He primarily uses Remote Office as an administrative tool that allows him to dial in to Howard Industries' network from home and perform network management functions.

"With Remote Office, I can check print queues and monitor server status throughout the network," Shoemaker said. "Now that token ring has been added, we will evaluate how to make more extensive use of the product."

Available now, Remote Office 3.1 is priced started at $395.

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The Enterprise Hub can also integrate legacy LANs into an ATM backbone, without requiring wholesale changes to your network. So you can take full advantage of ATM performance, and still protect your investment.

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The Enterprise Hub delivers high performance to virtually every point in your network.

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When you're ready to add bandwidth to your corporate backbone, the Enterprise Hub's ATM backplane will give you an ATM superhighway. Which means legacy LANs can be married to high-performance ATM backbones. And later, when you're ready to bring ATM capabilities like multimedia to the desktop, it's as easy as adding a card to the Enterprise Hub's cell-based backplane.

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SLOTS/ SEGMENTS	14/168	17/100	14/52	14/115
MAX. PORT DENSITY	500	200	240	336
TOPOLOGIES	Ethernet, Token Ring, FDDI, ATM	Ethernet, Token Ring, FDDI, ATM	Ethernet, Token Ring, FDDI	Ethernet, Token Ring, FDDI, ATM
ROUTING	IP, IPX, DECnet, Appletalk	No Routing	No Routing	IP, IPX, DECnet Phase IV, AppleTalk, XNS, OSI, X.25, RIP, OSPF, BGP, ES-IS, IS-IS, Transparent Bridging and Source Route Bridging
STARTING PRICE*	$417/port	$200/port	$223/port	$160/port

*Pricing and other chart information was compiled from multiple industry resources as of 3/94.

In addition, the Enterprise Hub's ATM backplane allows you to add, segment, and define virtual LANs, on the fly, right from your network management station.

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INTERNETWORKING MONITOR

by Scott Bradner

The mythology of the Internet

Every now and then, someone comes along to tell us how great the Internet-less future will be. The prediction is usually that soon the telephone companies will get into the business of providing interconnection services. When that happens, all of the terrible problems we are now experiencing will become just a fading memory, like a bad dream in the early morning before waking to a glorious sunny day.

These predictions, like the one in an op-ed column in this paper on May 16, always start out with the assertion that the current Internet runs over a government-subsidized backbone that connects regional nonprofessional network service providers. I have heard the Internet called "a free good" where the efficiency of protocols and applications is not a concern because users are playing with "free lunch money."

The view is usually incredibly U.S.-centric with little or no mention made of the use of data networks in other countries. Somehow the impression one gets is that the Internet is some little, trouble-plagued toy that a few fuzzy-headed academicians use to send E-mail to each other and look for dirty pictures.

When I hear or read this, I have to wonder if someone from a parallel universe popped in for a quick visit.

In the universe where I live, 10 million to 20 million people use an Internet comprised of more than 30,000 networks spread over 78 countries. Connections between these networks are provided by a wide variety of companies and organizations, the vast majority of which are for-profit (or at least intended to be).

In the U.S., companies like AlterNet, ANS, Performance Systems International, Inc., Sprint Corp. and WilTel have been offering Internet service for a number of years. All of these are professional, for-profit organizations. In addition, many non-U.S. companies offer Internet services in most corners of the world.

In the universe where I live, the Internet backbone supported by the federal government runs in parallel with a number of commercial backbones. Even some of the nonprofit regionals have purchased commercial connectivity through these parallel backbones.

In the universe where I live, there ain't much in the way of a free ride. Companies and organizations must purchase their Internet connections from a service provider that must at least break even and, in most cases, is trying to make a profit. Those who connect generally do so using a link that is slower than they would like because of the cost. Companies connect because they have business reasons to do so.

In the universe where I live, most of the regional Bell holding companies still see the National Information Infrastructure as a way to provide video on demand to countless couch potatoes. A few — Ameritech, for example — are starting to see that there might be data in their future. But with few exceptions, the telephone companies still see connectivity and a connection as the same thing.

A connection is a bit pipe from Point A to Point B. Connectivity is the seamless integration of the local and global environments. Phone companies are often very good at connections but generally don't have a clue when it comes to connectivity. Connectivity assumes a service provider-based support structure that can help users when their E-mail goes astray because of a misconfigured widget 2,000 miles away. This type of user support is not what I've been seeing from most of the phone companies in this universe — Sprint being the exception that proves the rule.

In the universe where I live, the Internet is the future. It is growing into the ubiquitous connectivity service. And we are building the future rather than waiting for someone else to hand us something they think we want — generally determined without asking.

Disclaimer: The above opinions are mine, although Harvard lives in the same universe.

➾ Bradner is a consultant with Harvard University's Office of Information Technology. He can be reached via the Internet at sob@harvard.edu.

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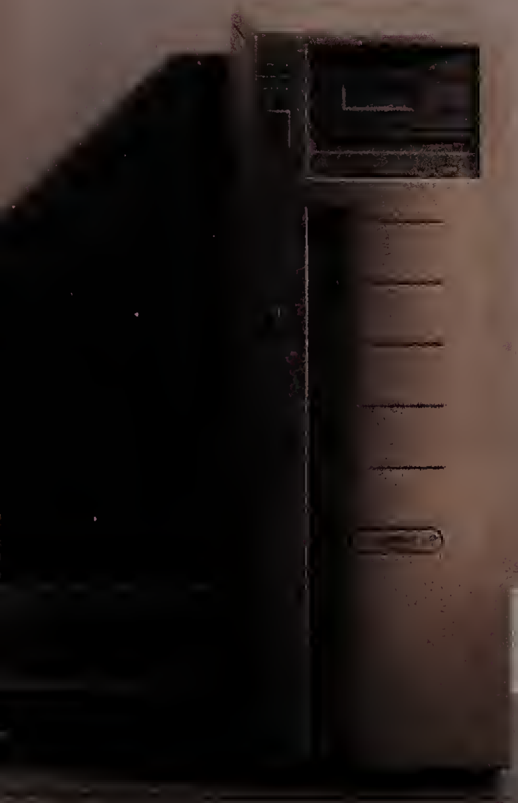

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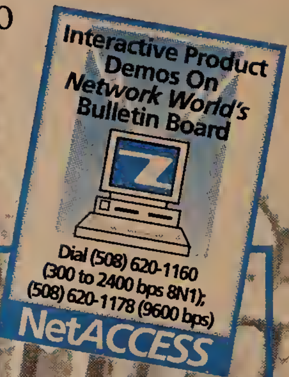
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New products featured in blue.

ADC TELECOMMUNICATIONS
PatchSwitch Demo. ADC's automated control for remote tech control switching systems. Includes circuit configuration records and switching alarm history on all connections.

BARANOFF SOFTWARE
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BELL ATLANTIC OF PENNSYLVANIA
Area Code Demo. Data disk lists exchange code changes after the Bell of PA (215) area code split on 1/8/94. Available in DOS and Windows.

COMMUNICATIONS DEVICES
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COMPAQ
Product Line Demo.

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DCA
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CD-ROM Demo. Network information CD-ROMs.

FAULKNER
CD-ROM Product Information. Describes Communications, MicroData and Dataworld Infodisks.

IBM
OS/2 2.1 Demo. Take the "Tour of OS/2". Learn about LAN Server 3.0 and OS/2 compatible hardware and software.

MCDATA CORPORATION
McData 60. LAN-to-mainframe connectivity solutions.

MICROCOM
LANlord Demo. An integrated system for real-time, centralized management of PCs and LANs.

MOTOROLA
Embarc Demo. Embarc (SM) allows users to send letters, memos, database updates and more to MAC and DOS based portable computers in over 170 cities.

NATIONAL COMPUTER SECURITY ASSOCIATION
Security Database. Computer Security Resource Database.

NET X, INC.
LANswer. Network troubleshooting software.

NETWORK DIMENSIONS
1. **Grafnet Plus Demo.** Provides visual presentations of WANs on geographical maps of the world.
2. **GrafBASE Demo.** A graphical database for managing and presenting LAN and MAN configurations.

NETWORK MANAGERS, INC.
NMC Vision. For Windows 3.1, NT, etc.

NORTHERN TELECOM
VISIT. Multimedia Video Conferencing.

ORNETIX
SerView Demo.
Manage your network and its resources with this Netware file server emulation software.

RACAL-DATACOM
Racal Management System.

RAD NETWORK DEVICES, INC.
OpenGate Presentation Demo.
RND's RISC-based modular, multiport, multiprotocol router with complete redundancy and fault tolerance.

ROLM
ComManager. A computer-telephony integration PC software program that increases productivity.

SOURCE-COMM CORP.
Client Server Demo. This ANS/1010 client demo dials into Source-Comm's ANS/1010 Server. Together they emulate both 5250 & 3270 for remote access to IBM mainframe and AS/400 hosts.

TRAX SOFTWORKS, INC.
Team Talk. A discussion application that facilitates communication among group members.

UNGERMANN-BASS
NetDirector Demo. A network management system using modular architecture and powerful management applications.

UNISYS
1. **CTOS Demo.** Describes the built-in open networking, multi-user and multi-tasking operating system of CTOS.
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WORD PERFECT
1. **Presentations Demo.** Drawing and sound tools make this DOS product a technical winner!
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4. **DataPerfect 2.3 Demo.** Pre-made applications provide immediate benefits to several vertical markets.
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6. **Office 4.0 Demo.** Integrated mail, calendar, scheduling and task management software.

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NETWORK WORLD

BRIEFS

Ungermann-Bass, Inc. next week will unveil its new name and look at the NetWorld+Interop '94 trade show in Berlin. The company will change its name to **UB Networks, Inc.**, allowing it to retain the well recognized UB moniker while reflecting the company's desire to redefine itself after a recent reorganization. According to one UB insider, the new company logo, which was unveiled to internal staff last week, is akin to "putting a high technology spin on the old *Star Trek* logo."

Klever Computers, Inc. last week rolled out a new line of 16- and 32-port stackable hubs that features a front-panel design that provides numeric displays of network traffic and collision rates. The panel also includes LED indicators for packet transfers and hub status, as well as LEDs for **port-specific collisions and polarity reversal** information.

The unmanaged 10Base-T Klever-Hub Stack hubs provide unshielded twisted-pair RJ-45 ports. The hubs can be stacked up to four high and treated as a single repeater. A slide-in management module is also available.

Available in June, the 16-port device costs $895, while the 32-port version is $1,685. The management module costs $399.

Klever: (408) 735-7723.

Beame & Whiteside Software, Inc. in Raleigh, N.C., last week announced BW-Connect NFS for Windows NT, a 32-bit implementation of the Unix-based **Network File System (NFS)** that gives Windows NT clients a number of Transmission Control Protocol/Internet Protocol and NFS services beyond what is available in the native TCP/IP stack in Windows NT. The NFS client module lets Windows NT users access file and print resources on a variety of Unix, Apple Computer, Inc. Macintosh and Digital Equipment Corp. OpenVMS systems across a net.

Also shipping with the product is a suite of TCP/IP applications, including an electronic mail handler that supports Simple Mail Transfer Protocol and Post Office Protocol/3 messaging protocols. The product costs $449.

Beame & Whiteside: (919) 831-8989.

Distributed Processing Technology of Maitland, Fla., last week rolled out a new series of SmartRAID **disk array subsystems** for Novell, Inc. NetWare — IBM OS/2 LAN Server — and Microsoft Corp. Windows NT Advanced Server-based local-area networks.

The subsystems will be shipped with the SmartRAID controller as well as with Storage Manager software, which makes the disk array easier to install, and Error Correction Code technology, which protects data stored within the subsystem. All systems support Redundant Array of Inexpensive Disks (RAID) Levels 0, 1 and 5, including dual-level RAID, whichlets an unlimited number of subsystems be logically combined. The SmartRAID subsystems are available now and cost from $10,670 for a 3.3G-byte model to $16,665 for an 8.4G-byte model.

Distributed Processing: (407) 830-5522.

Desktop ATM gets boost from many camps

Olicom, ENI detail ATM plans.

BY SKIP MACASKILL

Dallas

While most industry attention has focused on introducing Asynchronous Transfer Mode (ATM) into backbone networks, vendor announcements this week show that desktop developments are also picking up.

Olicom USA, Inc. and Efficient Networks, Inc. (ENI) — both based here — will unveil separate strategies to develop ATM network interface cards (NIC), while Ralph Ungermann's company will launch a start-up focused on desktop ATM products (see story, this page).

Olicom will unveil its first ATM card, a multimode fiber-based 155M bit/sec Synchronous Optical Network NIC for Extended Industry Standard Architecture (EISA) personal computer platforms. The card will enable these PCs to be linked to ATM switches, servers and other gear.

The EISA ATM card will debut at NetWorld+Interop Berlin next month, with general availability slated for late 1994 or early 1995. Pricing will

See Olicom, ENI, *page 25*

Priced to move

Fore Systems, Inc. has set the pricing standard for ATM adapter cards with its $995 SBA-100 NIC, while UB is pushing the envelope on the ATM switch side with its $995 per-port GeoSwitch.

Ungermann promises reasonably priced ATM.

BY SKIP MACASKILL

Santa Clara, Calif.

The promise is a bold one: to provide affordable Asynchronous Transfer Mode (ATM) to the desktop by year end.

Such is the mission of Ralph Ungermann, the former president and chief executive officer at Ungermann-Bass, Inc., who this week will announce the formation of start-up First Virtual Corp. (FVC).

The firm will seek to develop cost-effective ATM applications as well as application program interfaces and software drivers that will allow users to build multimedia applications.

In addition, FVC will integrate its software with a host of ATM devices, reducing the number of ATM components users need to buy.

FVC will focus on bringing desktop ATM into the mainstream with pricing that will be "shockingly low," according to Ungermann, who declined to be more specific.

But given that ATM switch prices range from $20,000 to $40,000 and ATM adapters are tagged between $1,000 and $3,000, there appears to be plenty of room for lower prices.

Despite analyst projections that significant deployment of the high-speed network technology is still three to five years away, Ungermann said he thinks his timing is right.

"Our job is to remove as many barriers as is possible to drive the acceptance of ATM down to the desktop," he said. "That means we need to make it easy to deploy, compatible with existing LAN and WAN infrastructures as well as price-competitive with current Ethernet products."

Although it will market some hardware, FVC will essentially be a software

See Ungermann, *page 25*

FVC background

Ungermann

Founded:	October 1993 by UB veterans Ralph Ungermann, Allwyn Sequeira, Jeff Leffingwell and Marlis Rossetta.
Based:	Santa Clara, Calif.
Financing:	Backed by venture capital firm Accel Partners.
Charter:	To enable widespread deployment of desktop multimedia applications via ATM.

ALR, IBM power up new high-performance servers

BY CARYN GILLOOLY

Atlanta

Advanced Logic Research, Inc. (ALR) and IBM last week separately boosted their server lines — ALR with the addition of a new symmetric multiprocessing server and IBM with seven new uniprocessor RISC System/6000 models.

Unveiled at Comdex/Spring here, ALR's Revolution Q-SMP server is a relatively low-cost alternative to a minicomputer for running applications that need to be accessed by end users from across an enterprise.

Available in June, the system will have a starting price of $6,495. The Revolution Q-SMP can support up to four Intel Corp. Pentium 90-MHz or 100-MHz processors. The system includes an Extended Industry Standard Architecture/VL bus and as much as 1G byte of error correcting memory. Internal storage on the Revolution Q-SMP can support as many as 22G bytes of data.

As expected, the new IBM systems are all AIX-based RS/6000 machines supporting a variety of processor types. With all the systems, IBM is stressing the increased performance over previous models.

IBM's highest performance new machine is the RS/6000 Model 59H, powered by a 66-MHz Power2 microprocessor and designed to run on-line transaction processing or high-end relational database applications. Standard features include: a Small Computer System Interface (SCSI)-2 Fast and Wide adapter; 64M bytes of memory, expandable to 2G bytes; 1M byte of L2 cache; 128K bytes of data cache; 32K bytes of instruction cache; 4G bytes of disk capacity, expandable to 492G bytes; a CD-ROM drive; and an integrated SCSI controller for internal media attachments.

Also at the high end is the new RS/6000 Model C10 PowerPC, which uses the PowerPC 601 80-MHz processor.

The Model C10 PowerPC comes standard with 16M bytes of memory, expandable to 256M bytes; a 1G-byte disk drive, expandable to 292G bytes; an integrated eight-bit SCSI-2 I/O controller allowing as many as four internal and two external SCSI or SCSI-2 devices; a CD-ROM drive; and a connectivity option card providing a selection of either an eight-port asynchronous adapter, a Token-Ring adapter or an Ethernet adapter.

According to IBM, this deskside server is geared toward commercial customers — from branch banking to retail in-store processing — as well as midsize workgroups linked to a corporate backbone.

COVERING THE DESKTOP

The new desktop RS/6000 Model 380 and 390 servers run the Power2 microprocessor and are designed to be small business or departmental servers. Both models come standard with IBM's new integrated SCSI-2 Fast and Wide controller; 32M bytes of memory, expandable to 512M bytes; 2G bytes of disk space, expandable to more than 237G bytes; integrated Ethernet; four Micro Channel slots; a media bay; and an internal CD-ROM drive. The RS/6000 Models R10, R20 and R24 are all rack-mounted systems offered separately to let customers essentially build their own serves. The three offer a range of performance and standard features similar to the Models 380 and 390, Model C10 PowerPC and Model 59H.

Prices range from $12,800 for the Model C10 PowerPC server to $98,100 for the Model R24. All systems will be available by September.

©IBM: (800) 426-2255.

Remote LAN access still not all it should be

BY CARYN GILLOOLY

The market for remote LAN access products must be hot — even industry giants Microsoft Corp. and Novell, Inc. have been attracted to what not long ago was the domain of many smaller players.

Yet despite the entree of well-established vendors into the market and availability of more sophisticated products, lack of funding and other corporate management factors are keeping many users from installing remote local-area net access and control systems in a big way, according to a new study.

Forrester Research, Inc.'s "The LAN Outer Network (LON) Voyage" study says end users and departmental administrators want more advanced dial-in LAN access capabilities installed to help them do their jobs better.

Users are looking to install new remote access products so that they can access files and services on corporate LANs from remote sites as well as run applications on the LANs remotely.

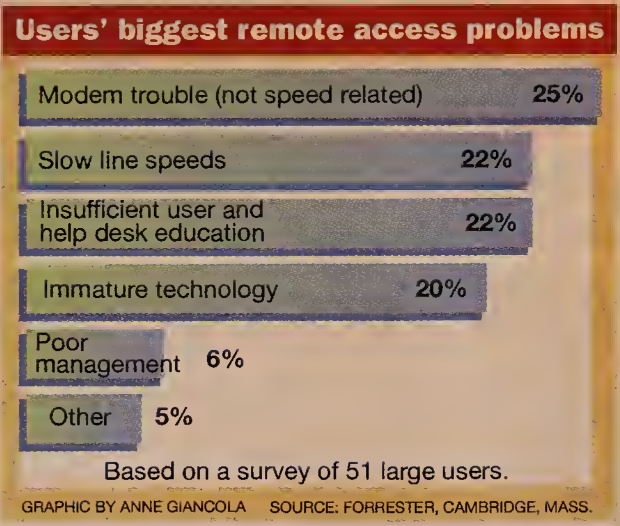
But users say corporate MIS departments are not buying into their arguments, according to the study. It points to two primary factors holding up the implementation of remote LAN access infrastructures: a lack of money and a wealth of bad experiences.

"IT execs have not earmarked any money to build a centralized [remote LAN] infrastructure. It is still considered a luxury — not yet a piece of the core corporate network," said Jay Batson, an analyst at Forrester and author of the study.

"Although network shepherds are happy to install and run the gear, business units or departments that want remote LAN access [are being told they] must pay for it themselves," he added.

According to the study, it is not that the remote LAN access products themselves are pricey; rather, it's that the technology is new and appropriate funding has not yet been slated for it in corporate budgets.

A manager at a utility company interviewed for the survey but who requested anonymity said funding is the "biggest hurdle" keeping the company from installing new remote LAN access products.



Based on a survey of 51 large users.

GRAPHIC BY ANNE GIANCOLA SOURCE: FORRESTER, CAMBRIDGE, MASS.

"All of our accounting is project-based, so we have to cost-justify the expense by each project," the user said.

"This causes trouble getting things done on a corporate level. There just aren't any projects big enough to finance the [corporatewide] remote [LAN] access we need," the user added.

Other remote LAN access holdups, according to the study, are phone-line hassles, modem incompatibilities, slow line speeds, undereducated support personnel and systems management.

RECOMMENDATIONS

Despite these potential obstacles, the Forrester study stresses the advantages of remote LAN access and strongly recommends implementation.

"By providing . . . remote LAN access . . . workers can use their PCs' graphical interfaces to query customer databases on the LAN or to send E-mail with embedded sales forecast spreadsheets," the study said.

This can bring otherwise disenfranchised users more into the corporate fold.

"Companies cannot successfully deploy production client/server systems without a [remote LAN access] infrastructure," the study continued. "MIS must elevate [remote LAN access] planning, placing it on par with routers and hubs."

©Forrester: (617) 497-7090.

Comments?

See "Contacts" box on page 2.

WINDOWS MANAGEMENT

New software to help users clean up networked apps

BY CHRISTINE BURNS

Atlanta

MicroHelp, Inc. has announced a new version of its previously standalone application management utility that will enable network managers to delete unnecessary Windows applications and files from networked server and client systems.

According to Tom Lynch, vice president of marketing and sales at the Marietta, Ga., company, Uninstaller 2.0 for Networks eliminates the need for net managers to remove the client portion of discontinued or revised Windows-based network applications.

Uninstaller 2.0 for Networks runs on servers with a minimum of 4M bytes of memory and equipped with Novell, Inc. NetWare, IBM LAN Server or another network operating system that supports the Internetwork Packet Exchange/Sequence Packet Exchange (IPX/SPX) or Network Basic I/O System net protocol. The program also includes a management console component software that runs on Windows 3.1 or higher.

Uninstaller 2.0 for Networks uses a technology called SmartDecoy licensed from Maximized Software, Inc. that lets end users know an application has been disabled by a network manager. Lynch explained that when a network administrator uninstalls a network application from a server, a SmartDecoy icon is generated on the screen of every client system that had access to the deleted application. When end users try to access the application, they are notified that the program has been uninstalled.

Uninstaller 2.0 for Networks includes many safety features so valuable net data is not lost when an administrator uninstalls a net application. A Backup & Undo option can restore a mistakenly deleted application, while a built-in File Viewer lets users view the body of documents and other files before completing a deletion.

In addition to deleting net applications, Uninstaller 2.0 for Networks has a number of functions that let net administrators free up disk space on individual clients. The product's System-Cleanup tool rids PCs of unwanted fonts, video drivers and unused Windows components, and the DupeFinder finds and deletes duplicate files on the net.

Don Rudman, president of Rudman and Associates, Inc., a certified public accounting firm in Galesburg, Ill., has been testing a beta copy of Uninstaller 2.0 for Networks on his 10-user Novell, Inc. NetWare 2.X network for six months. He said the product is useful because not only does it help him delete obsolete programs from his network, it also helps him identify files created under these programs that may contain outdated information.

"By giving me a tool that literally vacuums up all the apps and files I don't need anymore, it could save me from having a lot of headaches down the road," Rudman said.

Uninstaller is available for $995 per server.

©MicroHelp: (800) 922-3383.

Olicom, ENI

Continued from page 24

be announced then.

The company also will lay out its long-term plan to roll out ATM hubs, switches and interfaces for bridge/routers over the next two years.

Olicom's product plans will include ATM adapters — based on silicon technology from Fujitsu Microelectronics, Ltd. — that will support 25M and 51M bit/sec speeds across a variety of PC buses, including ISA, Peripheral Component Interconnect (PCI) and PCMCIA. Most existing ATM cards are designed for high-end SBus platforms.

COMPATIBILITY CONCERNS

The company will also focus on making its ATM products interoperable with other vendors' ATM equipment. Olicom already has discussions under way with SynOptics Communications, Inc.

"Olicom is trying to get ahead of the ATM curve with its adapters so it will be well-positioned in the next three or four years when ATM will begin to have an impact at the desktop," said Rebecca Thompson, senior industry analyst at Dataquest, Inc. in San Jose, Calif.

While Olicom will bring out ATM-based products across its entire product line, ENI will focus solely on adapters.

"Our goal is to develop a full line of adapters for a variety of speeds, host buses, operating systems and physical layer interfaces that will be compatible with the leading ATM switches," said Shekar Rao, vice president of marketing at ENI. "We will also develop a range of [application program interfaces] so users can build desktop applications that use ATM's power."

The first phase of the rollout includes the ENI-155s, a 155M bit/sec SBus adapter for Sun Microsystems, Inc. SPARCstations and SPARCservers. It will be released in the third quarter with multimode fiber or Category 5 unshielded twisted-pair interfaces.

The second phase, slotted for the fourth quarter, will feature the ENI-155p and ENI-155g adapters. They are targeted at the PCI and Silicon Graphics, Inc. GIO bus platforms, respectively.

Pricing and further product details will be available when the adapters ship.

©Olicom: (214) 423-7560; ENI: (214) 991-3884.

Ungermann

Continued from page 24

house. The company is developing middleware to reside between graphical user interface-based ATM applications and ATM net devices in an effort to shield the user from as much of ATM's complexity as possible.

"We will focus on extending some interfaces and hiding others from the user to make desktop ATM as simple as loading an application and running it," Ungermann said. "Simplicity and ease of use must exist before users will even evaluate ATM."

FVC will forge partnerships with hardware, software and application vendors to integrate its middleware with their products.

"[FVC] has a great chance of making it based on the market it's trying to hit and the presence of Ralph Ungermann," said Fred McClimans, principal at Decisis, Inc., a Herndon, Va., consultancy.

"He has the clout to bring together a number of companies and cull the technology he needs to make this fly. My concern is that the multimedia market is so clouded right now," he added. "Confusion, however, does breed opportunity. And to paraphrase George Bush, Ralph definitely has 'the vision thing.'"

The company's other challenge is to help users integrate ATM devices and applications into existing local- and wide-area net infrastructures.

According to Ungermann, today's nets cannot support business multimedia needs because they can't scale to gigabit speeds or provide real-time throughput across the enterprise. Typical bridges, routers and servers are not designed to handle this sort of traffic.

FVC will be structured as a "virtual corporation," meaning its small core staff will build and coordinate a global network of independent software developers, hardware manufacturers and marketing firms to integrate all the needed pieces to deliver ATM to the desktop. This business model is designed to significantly reduce corporate overhead and get products to market faster by tightly integrating existing products from various companies into packages that address specific user needs.

The first firm to sign up with FVC is Advanced Telecommunication Modules, Ltd. of Cambridge, England, which will license its ATM multimedia technology for desktop video mail and conferencing to FVC. ☒

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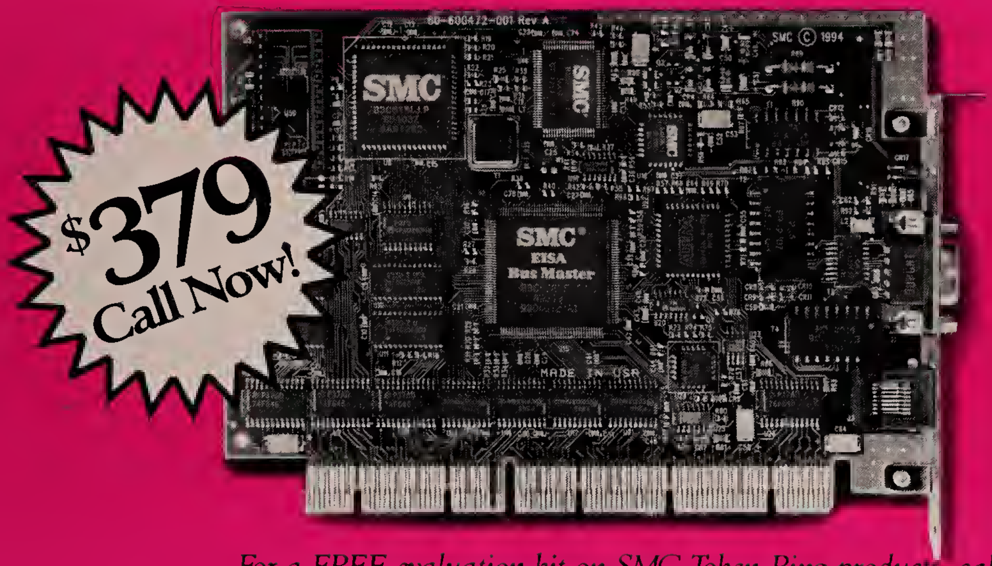

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• Intel TokenExpress EISA 32	$750

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SMC's new adapter provides a connection to both shielded and unshielded twisted-pair cabling on 4Mbps or 16Mbps data rate networks for maximum flexibility. Plus, it includes SMC's SuperDisk™ driver diskette with EZStart™ utility for quick installation and testing, software drivers to support all major network operating systems, and SMC's SNMP Agent for manage ability to the desktop. SMC also provides LSP and LAPS for IBM connectivity. It's incredible — you won't find a better value in a Token-Ring EISA adapter.

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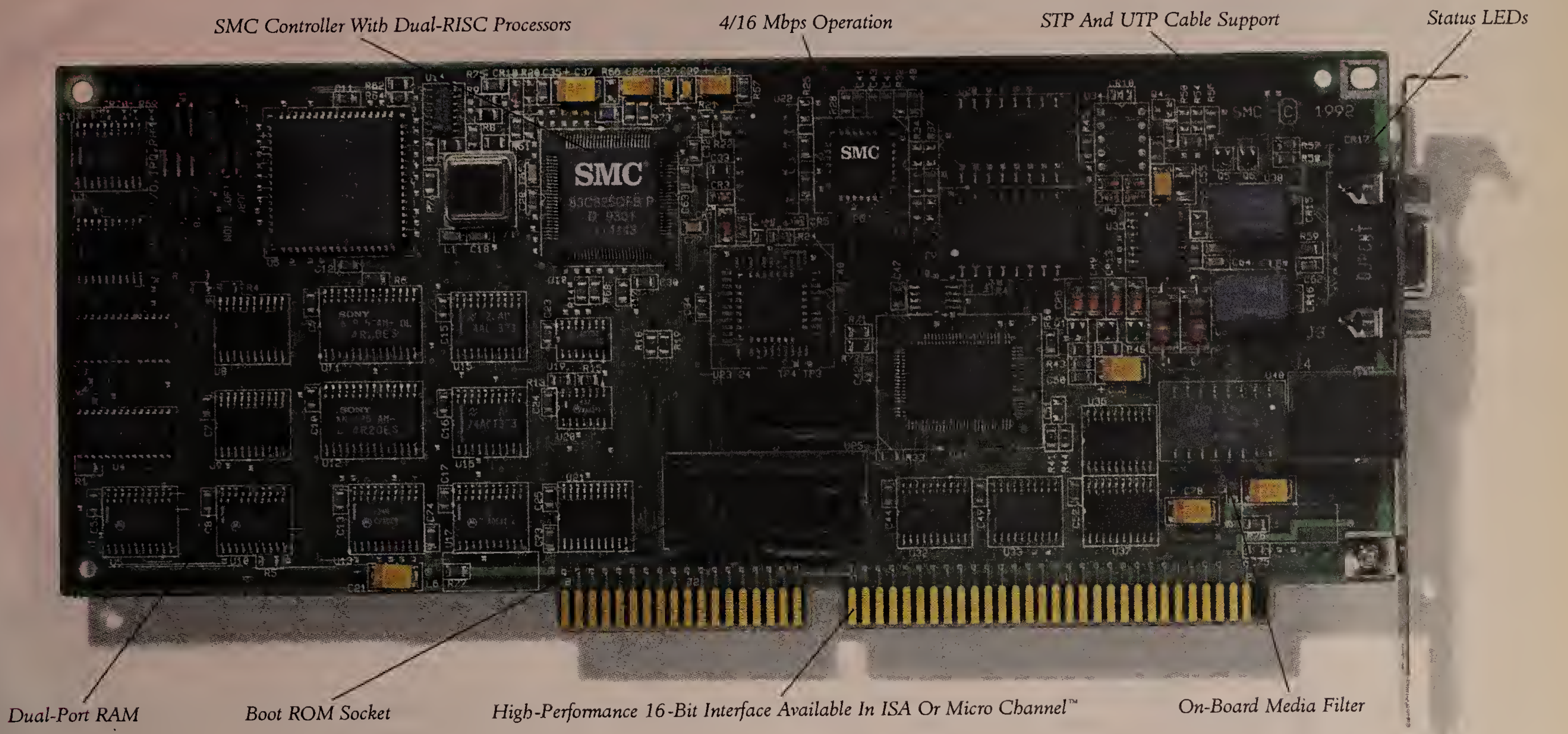
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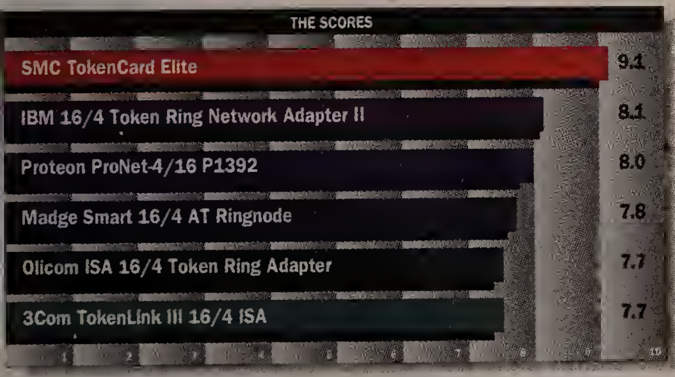

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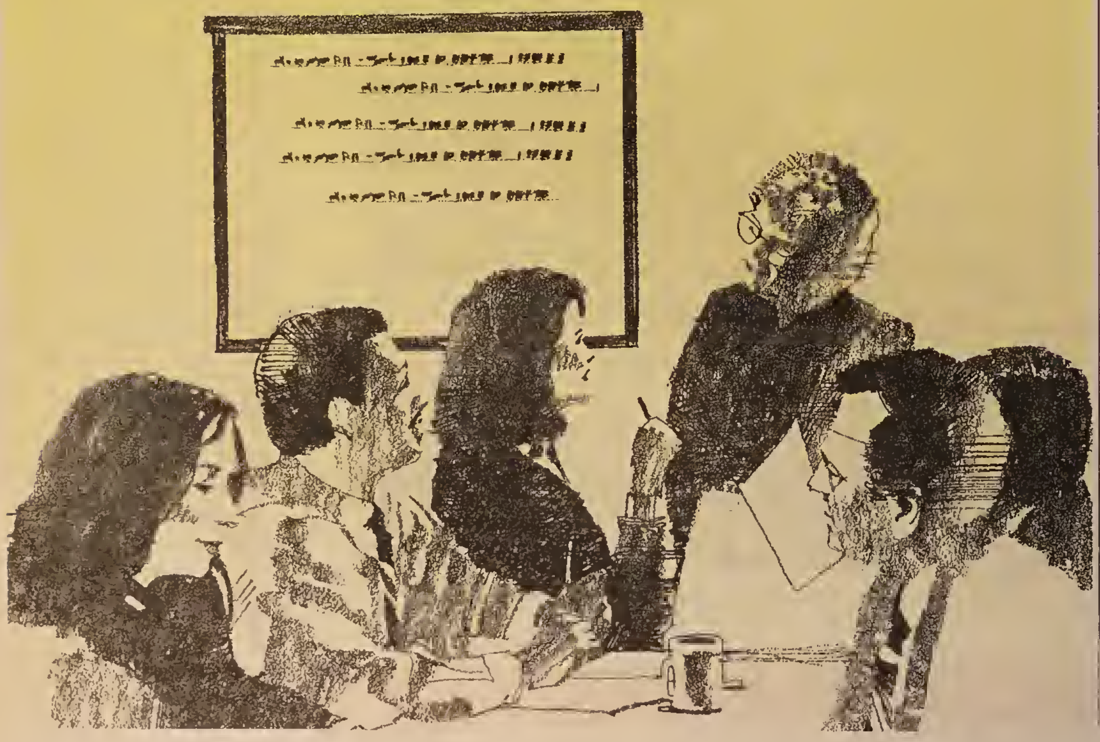

NET RESULTS

by Mark Gibbs

Hackers revisited: definitions, ducks and ne'er-do-wells

When I wrote about hackers a couple of weeks ago, little did I realize quite what I had stirred up (May 16, page 24).

Let me state up front, if you're a network manager, you need a hacker. But first, we need to define what we mean by "hacker."

For those of you not in the know, there are two definitions of hacker. The first is the one known to most people — someone who accesses computer systems without authorization for a purpose that the systems administrator and owners would not approve of.

Many of you have seen the film *War Games*, in which a kid connects to a Department of Defense computer and nearly starts the third world war.

Then there was the news coverage in *The Wall Street Journal* and other publications in 1990 about Operation Sundevil, which made many more people aware of what hackers were reportedly up to.

The stories focused on the Federal Bureau of Investigation's overzealous efforts to prosecute alleged hackers depicted by the FBI as evil geniuses. It is a truly outrageous story — see Bruce Sterling's "The Hacker Crackdown" book for a good account.

But the term hacker wasn't always used in a negative sense. At one time — pretty much up until the 1980s — being a hacker was a noble thing.

It meant you could do really neat stuff. If there was a problem with a computer, you were ready, willing and capable of fixing it. If there was a need for a quick utility program or someone was looking for an elegant, efficient solution, you were the person who could deliver.

In short, you were one of the net.gods, as they say on the Internet.

Unfortunately, the term fell into the wrong hands — those of the television studios and popular press.

Over the years, hackers have come to be associated solely with nefarious activities such as breaking into computers for fun or profit.

This probably occurred because understanding what hackers did was pretty difficult unless you were technical — something about which the general media can rarely boast.

So what we have is hacking in the popular sense — in short, being a bad boy or girl — and in the traditional sense, of being a net.god.

In response to my column, several people sent messages that ranged from polite rejoinders, to one message signed by "your.nightmare" (yeah, sure) that read:

"What the hell? Please publish more about these so-called bull---- articles. Be careful...."

It almost looks like a threat.

Another writer wrote to me in high dudgeon. He complained about my statement that "hackers are jerks, not rocket scientists" on the basis that he was, indeed, a rocket scientist.

Most readers just wrote to complain that I was misusing the term hacker (although I clearly stated in the column that I was referring to hackers only in the pejorative sense).

The term hacker wasn't always used in a negative sense. At one time — pretty much up until the 1980s — being a hacker was a noble thing. It meant you could do really neat stuff.

It seems that those who uphold the concept of what I'll call traditional hacking are really tied to the word. To them, all I can say is, "Loosen up!"

If the world calls something a duck, then they have defined how a duck walks and how a duck talks. If you, in turn, say you're a duck, people will assume that you walk and quack like one.

It is no good saying that's a misuse of the term. To do so is simply bucking popular opinion.

ALTERNATIVES

So let's look for an alternative to the term hacker for those of the traditional persuasion. How about:

- Wizards
- Gurus
- Digital connoisseurs
- Eclectic engineers
- Digitects
- Cybertects
- Hacketects or
- Hacketeers (although I'll admit it sounds like an offshoot of the Mouseketeers)?

Now if you are a network manager, you want to have a hacketect or two around. I have run several support operations, and its the hacketects in the group who will find the solution that eludes everyone else.

So let's appreciate that traditional hacking is a noble art.

But let us not confuse that with the new use of the term — a term that describes jerks, not rocket scientists.

Internet goody: You can find the full text of Sterling's "The Hacker Crackdown" on the Internet at several sites — for example, by anonymous ftp from "info.umd.edu" in "/inform/computing_resources/netinfo/readingroom/hackercrackdown." The text is in five files (introduction plus four sections) totaling just over 600K bytes.

Gibbs is a consultant and writer in Ventura, Calif. He can be reached at (800) 622-1108, Ext. 504, or on the Internet at mgibbs@rain.org.

Int'l carriers headed toward mega-merger

BY JOANIE WEXLER

Dallas

Multinational firms looking to build a common worldwide communications infrastructure are driving the services arena toward a major consolidation that could leave just four or five U.S.-based global carriers in 10 years.

This was one theme that had users and analysts buzzing at the International Communications Association conference last week here.

Multinationals are looking toward their global nets to help them reach new markets, and the trend toward unification among carriers will be a key factor affecting such users over the next three to five years, said Carl Pitasi, vice president of enterprise networking strategies at the Stamford, Conn.-based Gartner Group, Inc. during an industry update briefing.

Show attendee Jim Fowler, director of strategic partnerships and systems integration at trucking firm Navistar International Transportation Corp. in Oak Brook Terrace, Ill., agreed: "If the right mergers and acquisitions come to fruition, it would change our buying habits from piecemeal to total solutions," he said.

BT North America, Inc.'s investment in MCI Communications Corp. already holds promise for a large department store chain whose telecommunications director attended the conference. The store, which is an MCI customer, hopes the partnership will help it get started with frame relay networking.

ICAEXPO
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MCI has been faulted for its frame relay platform, while BT uses the StrataCom, Inc. IPX platform, which has been successful for AT&T and WilTel.

"We would use the BT platform for frame relay domestically, then look to expand internationally," said the attendee, who requested anonymity.

As for which carriers will survive long term, Pitasi cited the BT-MCI combination, AT&T and EDS Corp. (with a partner) as likely finalists. He pegged Ameritech, Bell Atlantic Corp., GE Information Services, US West, Inc. and WilTel as acquisition targets.

Sprint Corp.'s survivability on its own is questionable, Pitasi said — though the company's fiber infrastructure would make it a valuable asset to another company. For example, Sprint is talking with EDS about an as-yet undefined relationship (*NW*, May 23, page 5).

"If Sprint gains the marketing, management and leadership of EDS, look out," he said.

While carrier cooperation may be what users want, several observers, including the carriers, acknowledged that the transition to consolidated services will be painful.

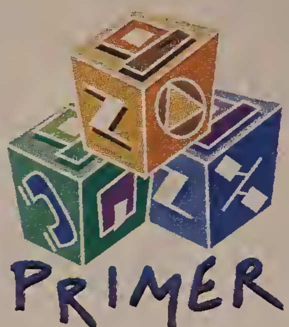
"While desirable, for the most part, these relationships are not working well yet," said Susan Mirbach, president of Belgacom USA, who spoke at a conference session on carrier relationships. "Some users may suffer significantly in the short term" as carriers attempt to meld agendas, corporate cultures, billing and operational procedures, she said. ◪

Wireless security worries wane

Airborne packet data dubbed less vulnerable than terrestrial transmissions.

BY JOANIE WEXLER

Users discouraged from wireless networking because of security concerns should take another look: According to industry experts, airborne data may actually be more resistant to eavesdroppers than data traversing traditional land-lines.



Some who have long dismissed wireless communication as too vulnerable for sensitive applications are beginning to change their tune as they consider the difficulty associated with tapping digitally encoded wireless transmissions that travel ad hoc network routes.

"I'm beginning to believe there's not much difference between wired and wireless when it comes to security," said David Eisenlohr, vice president of telecommunications and computer operations at the Pacific Stock Exchange in San Francisco. "If an application needs to be secured, it doesn't much matter what transport it is running on."

According to experts, intercepting digital radio communications requires a much more savvy hacker than, say, someone with a protocol analyzer tapping into a wired network or plugging a scanning device from Radio Shack into the analog radio net.

To capture and make sense of digital radio communications, would-be eavesdroppers must understand the particular digital encoding scheme in use and have the expertise to modify a radio scanner accordingly — a tall order, observers said.

Built-in safeguards

With the exception of analog cellular networks, which offer no security, most wireless schemes are at least as resistant to eavesdropping as their land-line counterparts.

Network type	Inherent security
Digital circuit-switched cellular (voice and data)	•Requires sophisticated hacker who must be able to modify scanner for different digitization techniques. •Encryption built into some digital cellular phones.
CDPD (voice and data)	•Requires sophisticated hacker and modified scanner. •RSA encyption built in. •Transmissions are broken into small packets that hop channels, making it nearly impossible to follow all packets of a given communication.
Packet radio (data)	•Requires sophisticated hacker and modified scanner. •Like CDPD, transmissions are broken into small, hard-to-follow packets.

"With all the different digitization techniques, it's almost impossible to listen in," according to Ira Brodsky, president of Data-Comm Research Co., a consultancy in Wilmette, Ill.

The least secure transmissions today are those running on analog circuit-switched cellular nets — as exemplified last year when members of the British royalty were overheard in the now-infamous lovelorn cellular voice conversations that were splashed across the tabloids.

Aside from the use of radio scanners, anyone with an old UHF television can use its extra channels to simply tune in to the analog cellular and specialized mobile radio networks, Brodsky said.

Newer digital circuit-switched cellular technology includes such schemes as the widely used Time Division Multiple Access and its main emerging competitor, Code Division Multiple Access. While the digital nature of these protocols alone throws a wrench into hacker efforts, analysts and vendors agreed that such circuit-switched transmissions — analog or digital, wired or wireless — are inherently more exposed than packet-switched traffic.

This is because with circuit-switching, users establish a constant connection for the entire period of time during which a transmission traverses the channel. This gives an intruder time to pick up on a sequential, cohesive conversation.

With wired and wireless packet switching schemes, on the other hand — including X.25, frame relay, Cellular Digital Packet Data (CDPD), the ARDIS protocol, and RAM Mobile Data's Mobitex protocol — transmissions are chopped into snippets of data, or packets, for transmission in the most efficient manner. They are then reassembled at the receiving end.

This process makes it difficult for hackers to grab orderly, meaningful packets, Brodsky explained.

For example, on the RAM Mobile Data packet radio network, "packets keep changing channels and base stations. You'd have a tough time following a person around and figuring out what channel his transmission was on," according to Charles Nahabedian, vice president of marketing at RAM Mobile Data.

Scanners would have to be tuned into the right frequency, the right channel and the right route — decisions that the network makes ad hoc.

Perhaps the most secure wireless scheme is the neophyte CDPD, a technology that runs digitally encoded data across the analog cellular net.

According to Craig Kairis, director of marketing within the wireless data division of McCaw Cellular Communications, Inc., CDPD has built-in RSA Data Security, Inc. data encryption, which means that transmissions in flight "would be gobbledygook to someone with a scanner." ◪

BRIEFS

MFS Communications Company, Inc. last week began operations as a competitive access provider in London, its first local access venture overseas. Local subsidiary MFS Communications, Ltd. has installed 27 kilometers of fiber and signed up 70 customers for service. The **London** network will connect to **New York** via an Asynchronous Transfer Mode link announced in February. MFS currently has 24 metropolitan networks in service in the U.S.

An agreement among the **American National Red Cross, AT&T** and **McCaw Cellular Communications, Inc.** calls for AT&T to donate 270 cellular phones and long-distance service to the disaster relief organization, while McCaw will provide wireless services. The phones and services, including phone numbers reserved for disaster situations, will be "hot and ready" to be put into use to speed communications and assistance to disaster victims.

The vendors have supported the Red Cross' relief efforts after the fact in the past; the move formalizes the alliance, aimed at aiding the efforts of Red Cross emergency response teams.

MCI Communications Corp. last week said it has melded its VideoNet conferencing offering with longtime partner **Stentor, Inc.'s** Canadian Video Forum service. The move should extend the reach of MCI's multipoint bridging, coder/decoder conversion, and single-point-of-contact and billing services across the Canadian border. The service will support videoconferences among dissimilar equipment on user premises and bridge in multiple parties for users that do not wish to invest in multipoint bridges. In addition, MCI, and now Stentor, will handle the administrative functions of reserving bridge port time and booking customer premises video rooms for customers, MCI said.

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Carriers ready advanced AIN voice services

BY BILL BURCH

Washington, D.C.

US WEST, Inc. will soon announce a series of new services based on Advanced Intelligent Network (AIN) technology, a new service platform that promises to rapidly increase the variety of services deployed in the local loop.

Carriers have been installing and testing AIN technology for the past few years, and the US WEST rollout is one of a series of AIN service announcements expected in coming months.

BellSouth Corp. and other carriers are also working to provide the services, which promise to reduce access-line expenditures and offer alternatives to costly customer premises equipment, such as automatic call distributors and interactive voice response units. The AIN services constitute a third wave of enhanced services, following earlier custom calling and Custom Local Area Signaling Services offerings.

The AIN era will begin June 9, when US WEST launches its SingleNumber Service in Phoenix. Denver will follow later in the month, and US WEST plans to roll out service in other major metropolitan areas in its region through the end of the year, said Brent Henningson, a senior product developer with the carrier.

SingleNumber Service allows US WEST to route an incoming call based on criteria including the calling party's phone number, the time of day or week and on a percentage basis among various business sites.

Other local exchange carriers (LEC) plan similar services. For example, BellSouth plans to kick off an Area Number Calling service in Florida in December, quickly followed by launches in the rest of its states, according to Chester Dixon, a BellSouth product development manager.

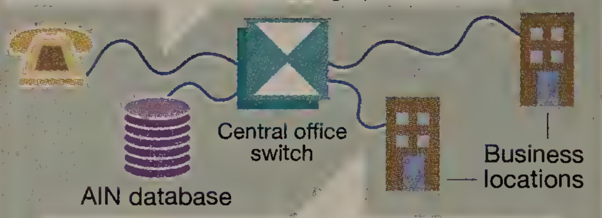
For now, the services can only handle intra-local access and transport area calls, but the potential exists for long-distance support, as well. BellSouth plans to hook up with a long-distance carrier to take the service inter-LATA in the next 12 to 18 months, Dixon said.

Carriers will likely price the service with a flat monthly rate supplemented by a per-call charge. US WEST will ask a basic charge of $45 per month, along with monthly charges per number of business sites. The carrier's monthly site charges will be $7 per site for one to six locations; $5.50 per site for seven to 15 locations; and $4 per site for 16 or more locations. US WEST will also charge 12 cents per call, but plans a volume discount. Overall, a business with five locations and 1,000 calls per month would pay $200 per month.

Custom calling

BellSouth's Area Number Calling service gives users control.

1. After a call is placed, the central office switch does a lookup in an AIN database, which holds users' call routing specifications.



2. Calls can be routed according to a caller's geographic location, the time of day or day of week and can be allocated among locations on a percentage basis.

GRAPHIC BY TERRI MITCHELL SOURCE: BELLSOUTH, ATLANTA

BellSouth is trialing the service in south Florida with furniture retailer Waterbed City. The company uses a single number but routes each call to one of its 13 showrooms, eliminating the need for location maps in print advertisements.

The AIN service "makes it quite easy to telemarket our product," said Mike Lennon, Waterbed City's marketing director. For larger businesses, the percentage allocation feature supports the routing of calls to different offices based on the number of staff at each.

Call routing is only the first of a set of new services that will be based on AIN technology, according to Mark Murset, a strategic planning director at Bell Communications Research.

The services rely on an advanced signaling platform that allows for a much greater degree of intelligence in the switch. The platform features additional memory and processing power that can take on such tasks as interactive voice response and limited, speaker-independent voice recognition.

With those capabilities, carriers such as US WEST can let businesses tailor messages to incoming callers and solicit customers for additional information, such as credit card numbers for automated sales by phone.

The new services will allow businesses a much greater degree of freedom in setting up call systems with the LEC. Where custom calling and CLASS feature a predefined set of services, AIN offers a functional building-block approach, allowing individual subscribers to construct customized services, much as they can currently do with interactive voice response gear.

With the new AIN platforms, LECs such as Bell Atlantic Corp. have opened the door to third-party software developers that can help come up with new services, previously the sole province of switch makers. ☒

FCC now at full strength and facing busy agenda

BY BILL BURCH

Washington, D.C.

Two new FCC commissioners were sworn in last week, bringing the commission up to its full complement of five as it prepares to tackle such issues as its first triennial price cap review.

Newcomers are Susan Ness, a former banker from Maryland, and Rachelle Chong, an attorney who has represented cellular companies and radio common carriers before the California Public Utility Commission.

Chong, a partner with the San Francisco law firm of Graham & James, fills a seat vacated by Sherrie Marshall. Chong's term expires in June 1997. Ness replaces Ervin Duggan, and will serve for the full five-year term. Ness has worked as group head of American Security Bank's communications industries division and as an assistant counsel to the House Committee on Banking, Currency and Housing.

The two new members should help the commission cope with work on several complicated issues it is currently addressing.

Chief among them is the triennial price cap review, for which the Federal Communications Commission staff must scrutinize carrier financial filings prior to setting new pricing levels.

During the mid-1980s, when carriers were subject to rate of return regulation, a similar review led the FCC to cut local exchange carrier (LEC) rates. And some are hoping that the commission will take the same tack.

CHONG

"Prices should come down significantly," said Brian Moir, counsel for the International Communications Association (ICA).

The commission should cut LEC interstate access charges some $3 billion to $4 billion, Moir contends, then make sure long-distance carriers pass those cuts along to consumers.

In addition to the price cap controversy, the FCC is also facing competing claims on broadband platforms and video dial tone.

James Blaszak, counsel to the Ad Hoc Telecommunications Users Committee, worries LECs will raise rates to subsidize construction of broadband platforms, then use that infrastructure to underprice cable companies and keep competition out of the local loop.

NESS

The telephone companies are not buying that argument, saying the commission needs to get moving on applications for video dial tone trials from Bell Atlantic Corp. and other carriers.

"If there are questions of cost allocation, they should be addressed when the tariffs are filed," said Ward White, vice president of government and public affairs with the U.S. Telephone Association.

With Congress considering a number of telecommunications bills, commissioners may be wondering if they should wait on a consensus to emerge on Capitol Hill, but ICA's Moir advises against any delay.

"With or without legislation, the FCC is going to have to deal with the same issues," White agreed. ☒

RATE & TARIFF MONITOR

by Eric Paulak

Move over LECs — AT&T's into telecommuting

AT&T has introduced the first residential long-distance ISDN service, opening the idea of telecommuting to a much larger group and giving local exchange carriers new competition for intra-LATA toll services.

But because AT&T's Digital Long Distance Service is tariffed as a residential service, the bill goes to someone's home, not office. This will at least be a billing and management headache; at worst, it could mean additional regulatory scrutiny and, possibly, limitations on the service's availability.

A little background: In its short life, telecommuting has only been available for those employees who live within the local calling area served by the LEC. But with the introduction of AT&T's Digital Long Distance Service, even those employees who live out in the boondocks can now take advantage of ISDN and, therefore, telecommuting.

ISDN is essential to telecommuting because it is the only cost-effective service that allows you to transmit simultaneous voice and data. So if you have a computer/telephone operation that allows customer service reps in a call center to get account information about a caller at the same time the call comes in, you can do the same thing with a customer service rep who's at home.

For inter-LATA telecommuting, which also requires ISDN service on the local level, AT&T is charging 27 cents to 30 cents a minute during the day for the data portion of the calls, depending on distance. For intra-LATA traffic, the costs vary according to state, but they're generally the same. Voice traffic is priced according to which AT&T residential long-distance service you have.

Local costs for ISDN services range from 3 to 8 cents for the first minute and 1 to 3 cents for every minute thereafter, depending on your location and LEC.

All AT&T charges for the service, however, will show up on your telecommuter's home phone bill. If you plan to pick up those costs, telecommuters will either have to bring you their bills or you'll have to reimburse them for the service.

That payment issue is drawing the attention of some consumer watchdog groups and, as a result, local regulators because those services are supposed to be classified as business offerings. Most states have laws against mixing business and residential services.

AT&T has gotten away with offering Digital Long Distance Service as a residential service so far because the carrier is calling it a multimedia offering, a hot phrase. But the watchdogs could pressure local regulators to force AT&T to change its tariffs and prices.

Regardless of what happens, extended telecommuting will remain available. In fact, MCI and Sprint already offer similar services for businesses.

AT&T is only now rolling out Digital Long Distance Service in the BellSouth region. AT&T plans to offer it over its entire net but can't until the LECs offer a local equivalent, which they've only done in a few states.

➻ Paulak is associate publisher at the Center for Communications Management Information in Rockville, Md., a provider of rate and tariff information. He can be reached at (301) 816-8950, Ext. 327.

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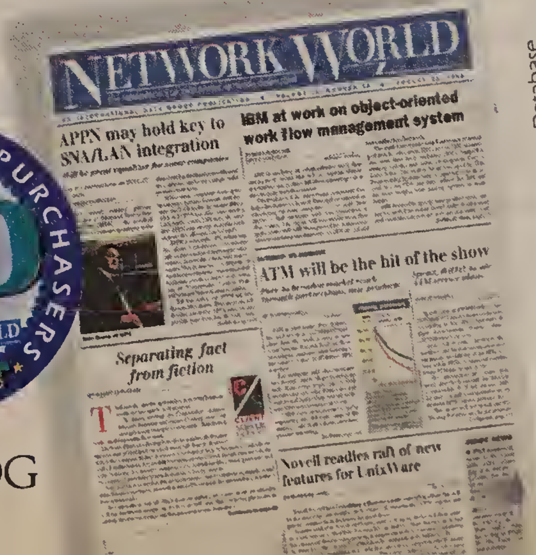


NETWORK WORLD

APPN may hold key to SNA/LAN integration

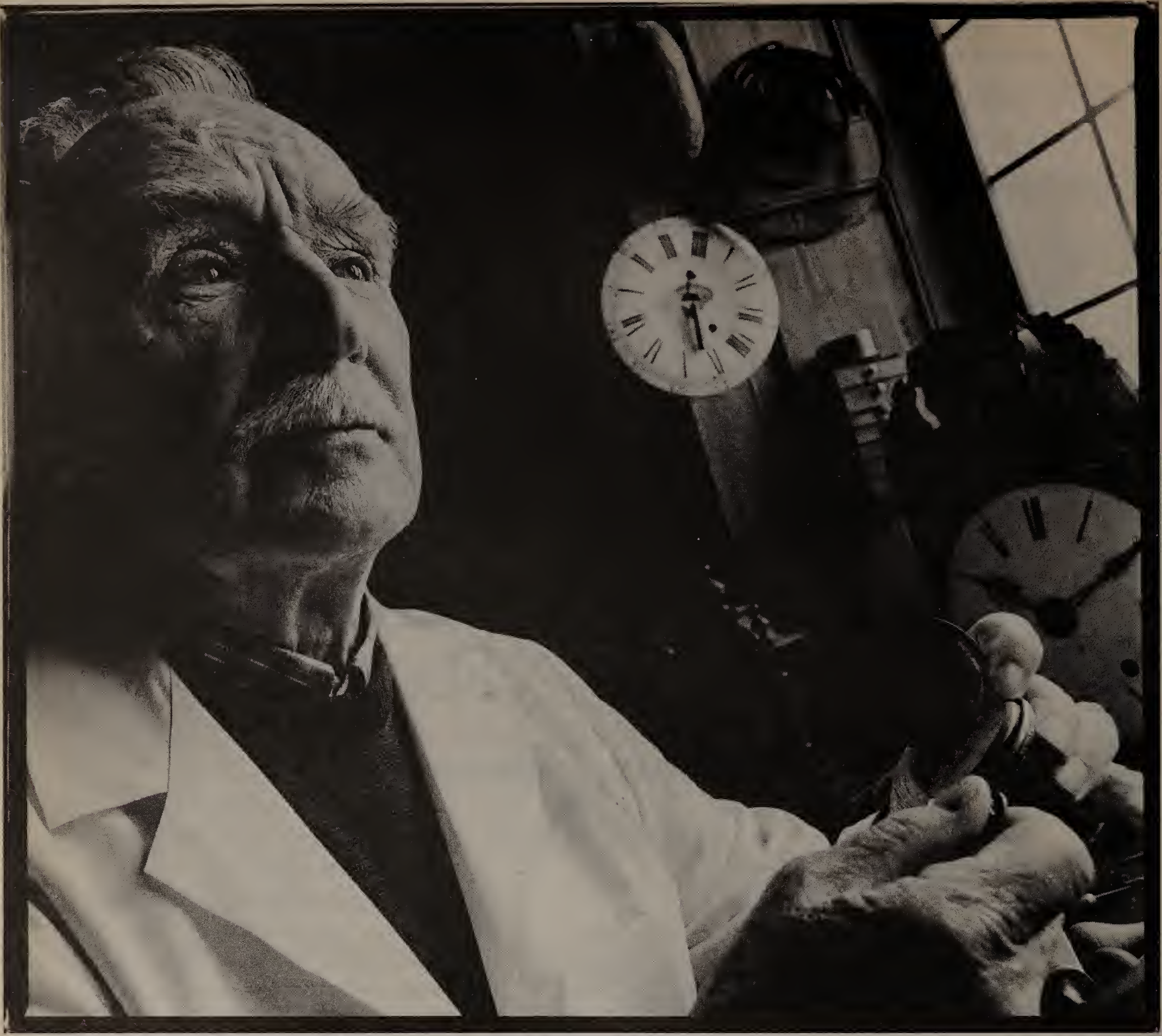
IBM at work on object-oriented work flow management system

ATM will be the hit of the show

Separating fact from fiction

Novell readies raft of new features for UnixWare

Network World Market Information Database



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SWISS TELECOM

GROUPWARE

Lotus brings Notes development firm back into its fold

BY ADAM GAFFIN

Cambridge, Mass.

Lotus Development Corp. last week bought back the company it spun off a decade ago to develop the Lotus Notes groupware package.

In a deal valued at roughly $84 million, Iris Associates of Westford, Mass., will become a wholly owned Lotus subsidiary.

Lotus Chairman Jim Manzi and Iris Chairman Ray Ozzie said users will see no changes in Notes functionality or pricing related to the deal.

Iris' only client was Lotus, for which it does research and development on Notes. It will continue its Notes work in Westford.

Lotus officials said the next major version of Notes is still scheduled for the first half of 1995. That is the same time frame for delivery of Lotus' planned Lotus Communications Server, which Iris is helping to develop with Lotus' cc:Mail organization in Mountain View, Calif.

The father of Notes

Ozzie, 38, got the idea for what eventually turned into Notes while he was a computer science major at the University of Illinois at Urbana in the mid-1970s. He helped program an application called Plato that allowed students and professors to exchange messages in public conferences.

NO ROYALTIES

Under terms of the buyout, Lotus will do away with any future royalties Iris would have received from the sales of Notes and related products, such as the Network Notes application being developed by Lotus and AT&T. Earlier this year, Lotus essentially bought out IBM's interest in Notes as well, when the companies restructured a deal under which IBM received royalties on certain Notes sales.

Manzi and Ozzie said determining Iris royalties has become complicated as Notes components are integrated into other Lotus applications. For example, Lotus recently unwrapped technology called FX for linking Notes with the company's desktop suite.

"It becomes increasingly difficult to separate out what is Notes and what is not," Ozzie said.

David Marshak, vice president and senior consultant for the Patricia Seybold Group, Inc., a Boston consulting firm, agreed. "Every Lotus product is either now, or very soon will be, a Notes-related product," he said.

WHO WILL BE AFFECTED

Marshak agreed with Lotus officials that the move will have no direct impact on end users. The deal will most affect Lotus' revenue stream, which Manzi said could grow as much as 5% next year thanks to the elimination of royalties that otherwise would have been paid to Iris.

Ozzie was a Lotus employee in 1984 when he approached then company Chief Executive Officer Mitchell Kapor about working on the workgroup technology that would eventually become Notes. Kapor agreed to let Ozzie go off on his own — with Lotus' financial blessing.

Ozzie's partners in Iris included Timothy Halvorson, Leonard Kawell and Steven Beckhardt, but Ozzie was the majority stockholder in Iris. When Notes was launched in 1989, Iris had just seven employees, Ozzie said. Today, it has 70, including 60 software engineers.

Manzi estimated Lotus spent as much as $200 million to bring Notes to market. The bulk of that went toward marketing and development of sales channels, he said. ☑

Fourth-generation power tools debut

Companies show off their wares at DB/EXPO.

BY ADAM GAFFIN

Vendors of client/server development tools last week unleashed a host of new products — many of them taking a bow at the DB/EXPO '94 show in San Francisco — that promise both greater power and ease of use.

Gupta Corp. of Menlo Park, Calif., for example, unveiled a new version of its SQLWindows package that features an enhanced visual interface and object-oriented programming.

Trinzic Corp. of Waltham, Mass., known for its database gateways, and Symantec Corp. of Cupertino, Calif., known for its desktop utility programs, both jumped into the fourth-generation language fray with new client/server development tools.

Cadre Technologies, Inc. of Providence, R.I., meanwhile, announced enhanced versions of its ObjectTeam and Teamwork object-oriented software engineering and development tools. Powersoft, Inc., of Concord, Mass., and Transarc Corp. in Pittsburgh announced EncinaBuilder, a tool for building client/server applications integrating Transarc's Encina transaction monitor with PowerBuilder front end client/server application development software.

All this comes after similar recent announcements from ParcPlace Systems, Inc. of Sunnyvale, Calif., and Uniface Corp. of Alameda, Calif.

End users will have to choose carefully when selecting a tool set for designing and building distributed applications, said Stephen Hendrick, manager of application development tools for market research firm International Data Corp. in Framingham, Mass. "There is no silver bullet out there," he said.

"A common complaint of many of the more simple client/server tools is that they run out of gas" once users try to move beyond prototype or departmental applications, Hendrick added.

A common theme with many of the emerging products is an emphasis on object-oriented programming.

Tim Harmon, director of application development strategies for META Group, Inc., a Westport, Conn., consulting firm, said vendors may be going too far in pushing objects because their objects will not talk to other objects and applications across the heterogeneous nets found in most enterprises today.

But Gupta said the new object orientation of SQLWindows 5.0 can help developers more quickly build client/server applications when combined with a native compiler for turning programs into assembly code.

Bob Krause, a client/server software engineer for First Data Corp., in Char-

See Tools, *page 37*

Client/server toolbox

Company	Phone	Product	Price	Availability
Blyth Software	(415) 571-0222	Omnis 73	$5,000+	June
Cadre	(401) 351-5950	ObjectTeam	$3,995+	Now
		Teamwork 6.0	$8,500+	Now
Gupta	(415) 321-9500	SQLWindows 5.0	$3,395	July
ParcPlace	(408) 481-9090	ObjectBuilder 2.5	$4,500	Now
Powersoft	(508) 287-1500	EncinaBuilder	$995	3Q
Symantec	(800) 441-7234	Enterprise Developer	$1,795; $2,595 for connection to DB2	June
Trinzic	(617) 891-6500	ObjectPro	$2,995 per license	June

BRIEFS

Unisys Corp. of Blue Bell, Pa., announced last week that it is porting its TransIT Open/OLTP distributed **transaction processing** software to Microsoft Corp.'s Windows NT Advanced Server. The software, based on Novell, Inc.'s Tuxedo transaction processing monitor, lets users distribute applications among workstations and servers. It supports the X/Open Company, Ltd.'s Distributed Transaction Processing model and can exchange data with databases from vendors such as Oracle Corp. and Informix Software, Inc.

The Windows NT version is scheduled for release in the third quarter. Pricing was not announced.

Unisys: (215) 986-4011.

Segue Software, Inc. of Newton Centre, Mass., last week announced a new version of its client/server application **testing tool.** QA Partner 2.0 adds a new object-oriented recorder that lets a developer track and test specific events. It also includes enhanced debugging and screen-capture tools. The software works with graphical user interface builders from several vendors, including Gupta Corp., Oracle Corp., PowerBuilder, Inc. It can test client applications on Windows, Windows NT, Macintosh, OS/2 and Unix platforms.

Shipping is scheduled for June, with prices ranging from $2,995 for Windows and Macintosh platforms to $6,995 for Unix platforms.

Segue: (617) 969-3771.

The **Worldwide Association of Lotus Notes Users and Technologists (WALNUT),** based in Sudbury, Mass., recently introduced individual electronic memberships for its national Notes database and discussion service. The service is hosted by the CompuServe network. For $9.95 a month, individuals get a mailbox on the network as well as a reduced CompuServe access rate of $18.60 per hour.

WALNUT: (800) 524-1858, Ext. 1222.

Interleaf, Inc. of Waltham, Mass., said recently that it will add support for the Standard Generalized Markup Language (SGML) to its enterprise **document management** packages in 1995. SGML support will give users new ways to manage and access documents or document components, the company said. Interleaf will use an SGML repository from Berger-Levrault/Advanced Information Systems of France.

Interleaf: (617) 290-0710.

Arbor Software Corp. of Sunnyvale, Calif., said it will release tools later this year for building links between its Essbase **on-line analytical processor** and Microsoft Corp.'s desktop Excel software. Essbase, which runs on a Windows NT server, combines data from a variety of corporate databases.

Arbor Software: (408) 727-5800.

Keeping users InsynQ with new software that distributes databases

BY JIM DUFFY

Mountain View, Calif.

Quintus Corp., a developer of help desk software, has rolled out a product that allows users to easily share problem management data by replicating it across multivendor distributed databases.

The software, called InsynQ, could be a big help for users who have trouble locating and accessing problem resolution data because it resides on different databases throughout their companies. Quintus officials claim most of help desk support calls deal with problems that have already been resolved by someone in an organization.

InsynQ is designed to change all that. By replicating problem resolution data to every help desk database on the net, help desk attendants can retrieve the most up-to-date information on net and system support problems from their local database.

The software runs on Hewlett-Packard 9000, IBM RISC System/6000, Intergraph Corp. Clipper and Sun Microsystems, Inc. SPARCstation servers distributed throughout a network, and is accessed through Windows, Motif and character-based interfaces on help desk workstations. When a help desk attendant resolves a problem and updates that information locally, InsynQ transfers that data between network servers and then uses a data cache to move it into the database that is local to the server.

The product works in two ways. Users can configure a "master/slave" replication scheme, where by a master database receives data on a change from a slave and then replicates that change to other slaves; or a propagation method in which Database A tells Database B of a change, and B will replicate it to C and D, D will replicate to E and F, and so on.

"The interesting thing about the way we distribute data compared to the relational database vendors today is we are very fine-grained," said Dave Parker, vice president of sales for Quintus. "We can send a table, individual records, and we can go down to an attribute of a given record to determine whether [the record] gets shared and where it gets shared."

Parker said this feature, called selective duplication, is critical for making sure that only those help desks responsible for a given piece of the network – for example, printers and print servers – receive that information while others do not.

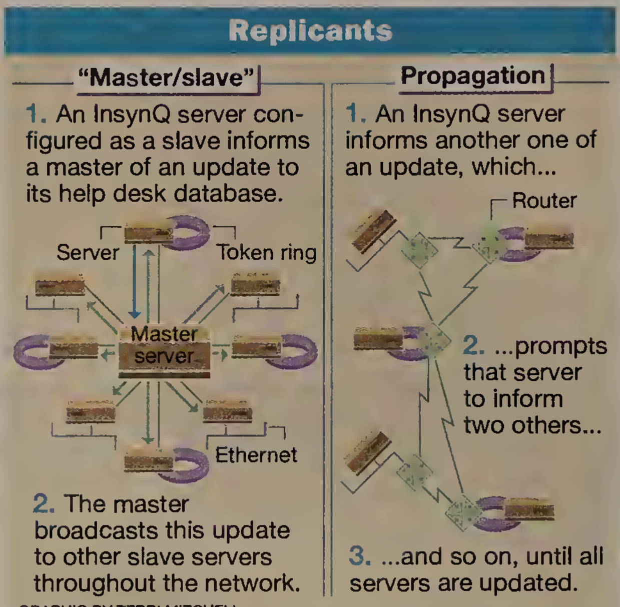
Users said they can benefit from a product like InsynQ.

"We're a global company, and a lot of our customers need 24-hour support," said Cap Schwartz, senior programmer analyst with Microtec Research, Inc. in Santa Clara, Calif. "What their product does is enable us to follow the sun, as it were, and always have a body or an engineer available with access to the data from the initial customer request. It also enables all of our sites to back up one another."

InsynQ supports Structured Query Language databases from Informix, Ingres, Oracle and Sybase, and those that support Microsoft Corp.'s Open Database Connectivity spec. It works with any help desk application, including Quintus' CustomerQ system.

The product is currently in beta test and is slated for general availability this summer. Pricing starts at $20,000.

©Quintus: (800) 542-1283.



Replicants

"Master/slave"

1. An InsynQ server configured as a slave informs a master of an update to its help desk database.

2. The master broadcasts this update to other slave servers throughout the network.

Propagation

1. An InsynQ server informs another one of an update, which...

2. ...prompts that server to inform two others...

3. ...and so on, until all servers are updated.

GRAPHIC BY TERRI MITCHELL

Tools

Continued from page 36

lotte, N.C., said these two features helped sell his firm on SQLWindows. The object-oriented programming means that changes made in one part of a program are far less likely to cause crashes elsewhere during execution, while the compiler means that applications run faster than those requiring an interpreter.

Like the new SQLWindows, Trinzic's ObjectPro is based on object technology and features a compiler to increase the speed of applications at run-time. It currently runs only on Windows clients, but the firm said it is may expand the number of platforms supported.

According to Symantec, a key component of its Enterprise Developer is its ability to separate business rules into its own object repository, rather than forcing them to be embedded in applications. The software currently supports Windows clients. as well as access to a variety of back-end databases.

Cadre's new versions of its ObjectTeam and Teamwork computer-assisted software engineering tools can be used to develop new applications as well as for such tasks as generating SQL code for a variety of back-end relational databases and OS/2 and OpenVMS clients. Cadre's offerings include new features for developers working with both the Rumbaugh and Shlaer-Mellor object-oriented methodologies for analysis and application design.

Meanwhile, Powersoft also announced PowerBuilder Library for Lotus Notes, middleware that integrates applications created using PowerBuilder with Lotus Development Corp. Notes databases.

A separate agreement between Powersoft and LEGENT Corp. has resulted in a jointly developed interface that integrates LEGENT's Endevor software configuration product with Powersoft tools. Endevor runs on DOS and OS/2, and tracks PC-based development of desktop and mainframe applications.

Replication looms for NetWeave middleware

BY ADAM GAFFIN

Wilmington, Del.

NetWeave Corp. last week said it will soon release a new version of its middleware that will allow host-based databases to replicate information in broadcast mode to servers across a net.

The replication feature of NetWeave Distributed Services (DS), due in June, will let net administrators reduce net loads by giving desktop application users access to data locally, said Chet Geschickter, director of research for the Hurwitz Consulting Group, Inc., a Watertown, Mass., consulting firm. The software will cut down on the need for end users to traverse an entire net in search of information, he added.

NetWeave will also add a capability for guaranteeing that messages eventually make it to their destination even if a client or network link is out of service, as well as well as a directory service for locating applications-based objects across a network.

Middleware is software for creating links between desktop clients and applications found on hosts or servers. NetWeave DS is designed for building client/server-based transaction processing applications that connect desktop clients, including DOS, Windows, Windows NT, Unix and OS/2 platforms, with a variety of back-end relational databases. DS includes both client and server portions.

The software supports Transmission Control Protocol/Internet Protocol, Novell, Inc.'s Internetwork Packet Exchange/Sequenced Packet Exchange (IPX/SPX), AppleTalk, LU 6.2 and asynchronous dial-up connections.

The new version of DS will allow a host-based master database to perform replication across a heterogeneous network as it receives new information. This capability will enable users of decision support and light on-line transaction processing applications to access data at local, rather than central, database servers in subsecond times, according to the company.

The company's new guaranteed delivery capability will ensure that work flow and other messages generated by NetWeave applications are delivered even if a desktop system or network component crashes. Geschickter said the company has a reputation for delivering such fault-tolerant applications through its work in building programs to run on fault-tolerant computers form Stratus Computer, Inc. and Tandem Computers, Inc.

DS will be priced starting at $19,900 for a single-server license and 20 clients.

©NetWeave: (302) 995-7187.

APPLICATION PARTITIONING

Start-up firm to help users leverage high-speed servers

BY KEVIN FOGARTY

St. Louis

Start-up company Transparent Applications, Inc. (TAS) next week will announce a software tool for off-loading much of the processing of desktop applications from the desktop to one or more parallel processing servers.

The product, designed to let desktop applications run hundreds of times faster, has been built specifically for users creating Windows-based applications with Gupta Corp.'s application development tools. TAS will announce the product at Gupta's International Developers Conference June 5-8 in Palm Desert, Calif.

The new product, called ParallelSAL, will let users partition Windows applications created in Gupta SQLWindows Application Language (SAL), which is generated by Gupta's client/server application development tool.

The software will free up desktop system processing power by shifting the processing of compute-intensive parts of applications, such as report writing and financial analysis, to multiprocessor servers.

The actual partitioning of the application is "totally transparent to the user," said TAS President Rod Zimmerman. But users will notice the improved speed of application processing, he said.

The ParallelSAL difference

Before

Compute-intensive section of application takes 15 minutes to run on a Windows client PC.

After

ParallelSAL divides compute-intensive part of application across a multiprocessor server; the rest of the application runs on the PC. Run-time is reduced to seconds.

"A part of an application that could take 15 minutes – 900 seconds – to run on a 486 [-based PC], may take only two or three seconds to run on an application processor with several CPUs," Zimmerman said.

For example, ParallelSAL could recompile a complex chunk of an application to run on a Tricord Systems, Inc. UnixWare-based server containing six Intel Corp. Pentium processors. The partitioned application would run in parallel on those processors, then get funneled back to the client desktop system and be combined with the section of the application still running in Windows.

ParallelSAL is based on object request broker (ORB) technology that is compatible with the Object Management Group's Common ORB Architecture specification.

While ParallelSAL may be technically advanced, it addresses the needs of a very small segment of the application development market, said Dan Kusnetsky, research manager for Unix and advanced operating environment software at International Data Corp. in Framingham, Mass. He questioned how many Gupta SQLWindows customers really have superservers or other high-speed systems for handling the processing of complex applications.

ParallelSAL, which will be released during the fourth quarter, will work only with servers running UnixWare. The tool will be ported to other Unix platforms early next year. Pricing has not yet been announced.

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EDITORIAL

Multimedia's business uses

Sybase's Intermedia introduction last week left me with lots of questions about the company's plan for supporting multimedia applications across an enterprise, but its focus on business users was refreshing.

The high-flying database company announced an upgrade to its Gain Momentum development system with a handful of new features and a run-time version — dubbed Gain Interplay — for PCs and TV set-tops that will work with a somewhat mysterious new product dubbed Intermedia Server.

Intermedia Server is supposed to act as a sort of multimedia router, pulling feeds off video servers throughout a net, integrating them with other application data and delivering them to end users at their desks or in their homes.

But Sybase offered precious little technical information about the product, which is critical to the company's multimedia plan. For example, it is unclear what Intermedia Server provides that isn't already available in its component products, Open Server and SQL Server.

It also isn't apparent how multimedia data sources other than video will be supported under the architecture. Will Intermedia Server link to imaging systems, for example?

Still, I have to applaud Sybase for a couple things. One is the focus on openness. Sybase's goal of providing this multimedia glue linking different systems is a worthy one, as is its decision not to twist the corporate database into a video server engine.

More important is Sybase's emphasis on business uses of multimedia and new ways for companies to extend networks to customers and suppliers. OK, the company couldn't avoid the obligatory video-on-demand demo — Is that required by law now? — and the customers it spotlighted weren't even using Intermedia Server or Gain Interplay, although their applications were still interesting.

But the focus on corporate use of multimedia was a sea change compared to all the hyperbole about the Information Superhighway, which is really just a Data Dirt Road today. It was a study in contrasts with Oracle's introduction of Media Server — a Hollywood glitzfest that would have made D.W. Griffith proud. Today, every partnership, product and network upgrade is pitched as an investment in the grand future of the InfoBahn. It's nonsense.

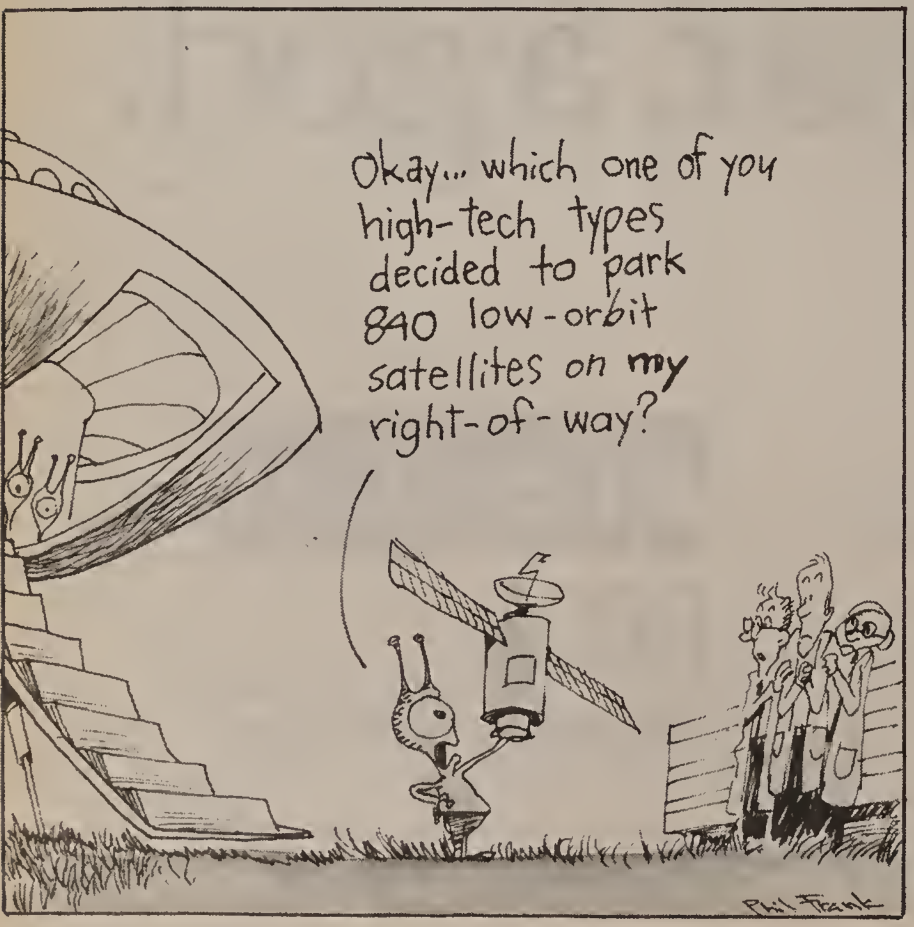
Somehow in the rush to convergence, the big players have forgotten their core customers — the people who have the money and the need to implement multimedia applications today. Corporate users don't want to hear about movies on demand or 500-channel cable. They want to know how their top suppliers will help them meet real needs now.

Vendors would be wise to remember the old adage: You oughta dance with the one who brung ya.

JOHN GALLANT jgallant@world.std.com

TELETOONS

FRANK AND TROISE


Okay... which one of you high-tech types decided to park 840 low-orbit satellites on my right-of-way?
Phil Frank

VIDEOCONFERENCING

by S. Ann Earon

Drop the smoke and mirrors and focus on video applications

Users are confused and often disillusioned by the claims being made about videoconferencing (*NW*, May 2, page 23). Videoconferencing equipment vendors and carriers need to stop selling smoke-and-mirrors products and services, and instead focus on addressing the technology's deficiencies and emphasizing applications for which it is practical.

There isn't an industry today that does not use videoconferencing. According to the "Teleconferencing Market Review," a 1993 report by Telemanagement Resources International, Inc. (TRI) and IFC Research, Ltd. examining worldwide teleconferencing market conditions, worldwide market for products and services that will rise from $800 million in 1992 to $7.7 billion in 1997. (Teleconferencing is the umbrella under which audio, audio graphics/multimedia and videoconferencing fall.) However, all of the elements that are required to make videoconferencing a universal communications tool are not yet in place. Three elements that are particularly needed, but currently still missing, are network connectivity, broadcast television-quality video and product standardization.

Lack of network connectivity means that videoconferences currently cannot be conducted seamlessly between parties on different carrier networks. For example, if you`are using an AT&T network for videoconferencing and want to videoconference with someone on an MCI Communications Corp. network, you must go through a gateway where the vendors set up the call for you; you can't just dial the other person's video number directly. This is becoming more of an issue as different organizations seek to videoconference with each other.

Additionally, users now want to hold multipoint videoconferences (three or more sites linked together). This adds to the potential network and equipment problems that can exist, since each party involved must know details such as the type of network or equipment being used by every other party.

The net connectivity issue becomes even more of a problem when users want to connect their videoconferencing rooms with their desktop videoconferencing units. While many vendors contend most users won't want or need to do this, the organizations already using videoconferencing state that one of the first questions they ask is, "Can I call from my videoconference room to the desktop unit and vice versa?"

Vendors need to remember that users are not interested in just viewing "talking heads" — they want to be able to share graphics and documents, and do collaborative processing. To many users, a "picturephone" at its current resolution and motion is nothing more than a novelty and without the data enhancements has little application.

In addition, many users are not satisfied with the picture quality provided by today's videoconferencing systems. They believe the technology won't be totally successful until the videoconferencing picture emulates the quality of the picture they receive at home on their televisions.

Current videoconferencing systems run at a speed of 56K to 1.544M bit/sec, with the most common speeds in the range of 112K to 384K bit/sec. TV-quality video runs at 90M to 140M bit/sec, but few of us can afford the bandwidth needed for TV, so we compress the signal for videoconferencing. This compression causes the picture to often look jerky and choppy, making it unsuitable for detail-oriented applications such as training, advertising and surgery.

Compression technology has improved immensely in the past five years and will continue to improve, but vendors and carriers must realize that their current offerings don't satisfy everyone and that videoconferencing isn't TV. Videoconferencing vendors, carriers and consultants insult users when they tell them that video between 56K and 1.544M bit/sec is "full motion."

Let's face it, most people are barely satisfied with the current picture quality of broadcast television. How can we expect users to accept desktop videoconferencing in its present form when broadcasters are on the threshold of delivering high-definition TV, which will offer even better picture quality than broadcast television?

These issues stress the importance of emphasizing videoconferencing applications rather than hardware. A well-defined application that shows how videoconferencing usage can positively impact the bottom line is much more serviceable to users than vendor talk about gee-whiz videoconferencing technology that looks neat but has no defined application.

Lack of standardization among videoconferencing products is the third major element holding videoconferencing back. While standards for videoconferencing are being developed and adopted, all of the necessary standards are not yet in place, making it difficult for unlike systems to utilize all features and functions when communicating. Yes, you can send and receive basic audio and video signals, but features like far-end camera control, high-resolution graphics and PC-to-PC functions have not been finalized.

Therefore, it isn't safe for an organization to assume that it can implement multiple types of equipment and have complete communications between all sites. It is time for the videoconferencing vendors to make users aware of these limits instead of selling a product and claiming that it meets all possible needs.

So what do users want and need? Imagine a videoconference where you see and talk with people at a distant location, show them any form of data and you can accomplish this by dialing the videoconference yourself, regardless of where the other site is located.

Also imagine an environment where users understand the benefits and applications for videoconferencing such that using it becomes second nature. It no longer occurs to these users to fly or drive to a distant site to hold a one-hour meeting.

While the future will certainly have full-featured, standardized systems, vendors, carriers and consultants now need to constantly remind users about the constraints associated with network connectivity, picture quality and product standardization. We must work together to make videoconferencing a cost-effective communications medium for all.

Earon is president of TRI, a Lake Wylie, S.C.-based management consulting firm. She can be reached a (803) 831-8585.

NETWORK MANAGEMENT

by Jim Corrigan and Eric Olinger

Consortium pushes to bring integration, simplicity to users

It's time network management vendors satisfy users' need for integration and simplicity. A new organization, the Management Integration Consortium (MIC), is taking shape to champion this principle (April 11, page 1). The MIC's goal is to address users' demand for faster solutions to their network management integration problems and application vendors' concerns about the divergence of management platforms.

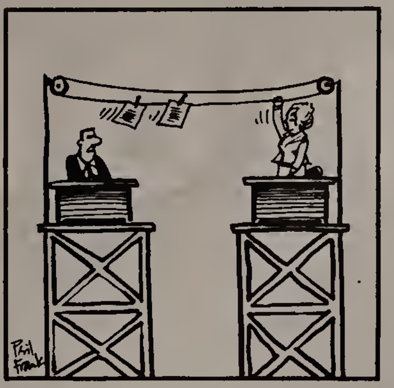
The demand for integration and simplicity in network management is well known. What has become apparent to many in the networking industry is that the standards bodies are ill-equipped to deliver simplicity, and the management platform vendors have more incentive to deliver differentiation than integration.

However, by participating in the MIC's steering committee, leading management platform providers such as Hewlett-Packard Co., IBM and SunConnect appear to be at least willing to support a common data repository — a definable set of common data that will facilitate data-sharing across applications and platforms.

The MIC is not a standards body. It is a working forum in which to develop code and specifications which, if well done, will become the de facto standards for storing and accessing management information.

The consortium should not be considered a replacement for standards bodies, but a way to empower users and vendors to focus on the most critical network management issues through building and using products rather than standards.

We are confident that we will be successful because the scope of our work is well-defined, limited and attainable. The MIC Data Integration Working Group has 34 companies providing input to define the set of applications data that will comprise the common data repository. We believe that the applications will drive the repository, not the other way around.



Our goal is twofold: to produce a working database schema determined by the data that the applications and platform software will need to exchange and share; and to define standard application program interfaces (API) that facilitate data exchanging and sharing. Whether the database schema is object-oriented or relational will be largely driven by the user community and its needs. The optimal solution will be one that provides schemas that work best for relational and object-oriented databases. In any case, the solution must be available soon.

The means to share data via an object broker mechanism are also being explored, especially where database access is not appropriate or timely enough.

The MIC will provide a mechanism for handling events that includes legacy protocols, the Simple Network Management Protocol, asynchronous devices and systems management sources. This mechanism will be non-Internet Protocol-specific and will rely on user and application vendor input as to what is key. Most important, we will define how to pass this event data in a way that it is usable by event management software packages such as Bridgeway Corp.'s Eventix, which provide sophisticated event filtering, event handling and automated action.

In addition, we will attempt to identify a series of standard event reports that should be available for display by network monitoring applications products such as Remedy Corp.'s Health Profiler. These canned reports will make the MIC solution usable out of the box and provide excellent examples for additional user-configurable reports.

Asset and configuration data storage and retrieval is important for configuration control and trouble-ticket applications. Asset and configuration programs like those from Accugraph Corp. and ISICAD, Inc. are largely concerned with gathering data from many sources. We believe these types of applications have the most to gain from a standardized schema and standard data API.

The MIC is dedicated to providing solutions that will bring the industry closer to achieving integration and simplicity. It will bring together users and vendors to produce a set of integrated solutions to the most pressing problems that can be addressed in a short, well-defined and concentrated effort.

➻ Corrigan is the MIC secretary and president of Ki Networks in Columbia, Md. He can be reached via the Internet at corrigan@ki.com. Olinger is the MIC chairman and product author at Peregrine Systems, Inc. in Carlsbad, Calif. He can be reached via the Internet at eric@peregrine.com.

Letters

Call to action

Regarding Scott Bradner's column on the smug lawyers who blasted the Internet with ads (May 2, page 30):

Let's take this one step at a time.

Are we going to tolerate it? Kiss the Internet culture goodbye. If not, then we have to do something about it. Not doing something about it is tolerating it, by definition.

Doing something about it might include sending electronic mail to their service providers demanding termination of their access; filing a class-action suit for the resources they used up; filing complaints to the American Bar Association (ABA) regarding unethical behavior (and to their state association and courts); or picketing their offices.

And don't withhold their names; we have to know who these people are in order to deal with them. There are no "rights of the accused" at work here.

I didn't get their Usenet messages, so I don't qualify as a member of the class-action suit. But I sure as hell will complain to the ABA if I know who to complain about.

The lawyers "maintain that they did nothing wrong"? Ha! Only if we sit on our butts will it be so.

Eric Bear Albrecht
Owner
Presto Computers
Taos, N.M.

Sweet revenge

Regarding Scott Bradner's column "Beware of righteous lawyers:"

I think we've all got the wrong idea here. Like it or not, there are those out there who are going to do whatever they can to make a buck.

I've got a solution so simple I'm amazed that I never thought of it before. Don't waste time complaining to their provider, etc. Send a reply directly to them asking for more information. Call their 800 number, fax them and E-mail them.

When these brilliant marketing wizards get thousands of replies, they will be so overwhelmed, they won't be able to accurately determine who, if anyone, really is interested in the garbage they are pushing. Let them spend lots of money to send all of us their glossy data sheets (which I'll promptly toss). After about the first 10,000 replies, they will realize that marketing like this is a complete waste of time.

Let's turn the lure of thousands of readers against them!

Dan Nadir
Technical director
Solsource Computers, Inc.
Carlsbad, Calif.

Pricing clarified

Just a note of clarification on the pricing of Bell Atlantic Mobile Systems, Inc.'s AirBridge Packet service (May 2, page 47). Monthly minimums range from $15 to $120. Peak hours for the service are Monday through Friday, 6 a.m. to 8 p.m.; discounted off-peak rates apply at all other times.

Also, the description of cellular coverage — "throughout most of the country" — is for the industry as a whole, not Bell Atlantic Mobile. Our service area is primarily along the East Coast and in parts of the Southwest. Nonetheless, with so many carriers standing behind Cellular Digital Packet Data, nationwide coverage remains a major strength.

Karen Ann Kurlander
General manager,
corporate communications
Bell Atlantic Mobile
Bedminster, N.J.

Points to ponder

I wholeheartedly agree with Thomas Nolle's column on the problems with Open Systems Interconnection and standards bodies (May 9, page 41).

However, I believe two important points were left out: First, the distinction between the OSI layer concept and the OSI protocols, and

See **Letters**, *page* 49

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Editor in Chief
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NEWS
Assistant Managing Editor
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Jim Duffy - Senior Editor
Phone: (508) 820-7417; Fax: (508) 820-3467

Michael Cooney - Senior Editor
Phone: (703) 830-8138; Fax: (703) 830-7963

Ellen Messmer - Sr. Washington Correspondent
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Phone: (703) 266-1537; Fax: (703) 266-1543

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Contributing Editors
Daniel Briere, Mark Gibbs, James Kobielus, Mark A. Miller, Alan Pearce

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Network World
161 Worcester Road
Framingham, MA 01701
Phone: (508) 875-6400; Fax: (508) 820-3467
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WHAT GOOD IS AN

INFORMATION

SUPERHIGHWAY

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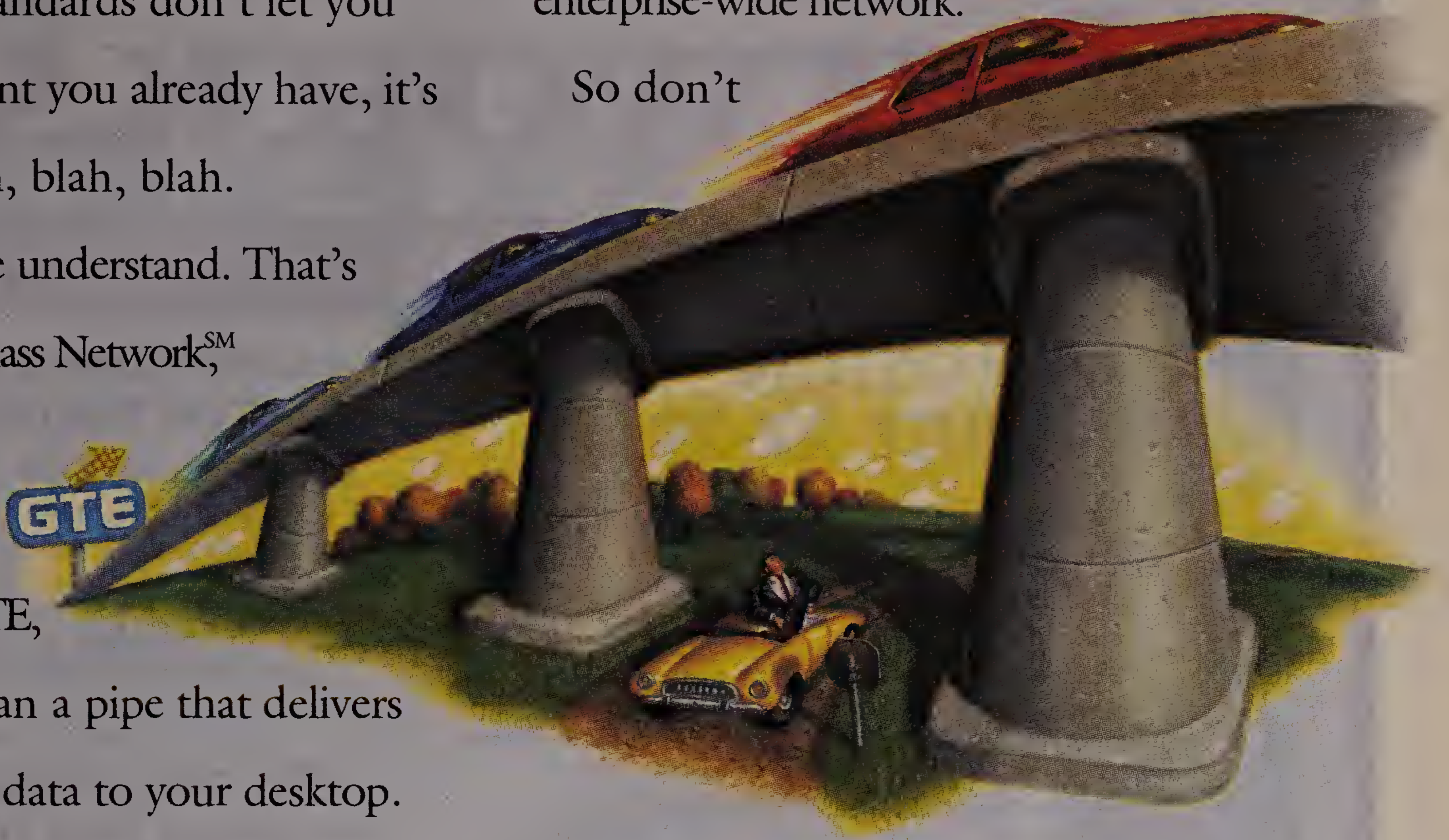

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NETWORK WORLD TEST ALLIANCE

Phonecell keeps lines open

Telular Corp.'s Phonecell-4M throws a cellular lifeline to sites that must stay in touch with the outside world.

By ALBERTO IELLIMO JR.

Organizations intent on keeping phone service up and running despite line outages have somewhere to turn. Our examination of Telular Corp.'s Phonecell-4M, revealed an effective cellular backup device that can provide telephone service to organizations when their wired service goes down.

We tested the Phonecell-4M unit, which uses four independent transceivers to support four cellular lines with cellular service provided by Bell Atlantic Mobile Systems, Inc.

As a cellular backup device, the Phonecell 4-M is able to keep many business applications running, even under varying cellular conditions. This is not to say that this, or any other cellular backup system, can handle everything. As some of our tests revealed, it can't.

Transmitting facsimiles, for instance, is a bit unreliable. But when the need to communicate is paramount, the Phonecell-4M provides an effective safety net.

What makes this system particularly versatile is that it doesn't limit users to traditional cellular handsets or other cellular equipment. In fact, once the Phonecell-4M unit is installed and programmed, it can be used with standard off-the-shelf telephone equipment. The Phonecell-4M supports autodial and autoanswer equipment, as well as custom calling features.

Not only can this technology be used for backing up traditional phone service, but it is also ideal for providing service to remote locations where traditional wired connections don't exist. Railroad companies, such as Conrail, Inc., for instance, have used Telular equipment to remotely control distant track switches.

The Phonecell-4M is a member of a larger product line, suitable for sites that need to set up multiple telephone, modem or even fax connections.

At the low end of this line is Phonecell, a compact and portable desktop box with a single transceiver that allows users to attach a single device. At the high end is the Phonecell CPX, a customizable unit that can be configured with 12 cellular lines. Taking up the middle ground are the Phonecell-1M and Phonecell-4M.

The benefit provided by the Phonecell-4M is obvious to anyone who has been cut off from civilization by the loss of phone service. If the phone service between the home and the local central office is disrupted, for instance, by a fallen branch on a telephone wire, a cellular phone user still has the ability to communicate. The person without a cellular phone is out of luck until the wired phone service is restored. This is where Phonecell comes in, providing organizations with backup access to the public network.

NET Result

Product:
Phonecell-4M

Key findings:

- Can be used with standard, off-the-shelf telephone equipment.
- Uses multiple layers of fuses to cope with dirty power supplies.
- Fax transmissions had a 50% success rate.

Vendor:
Telular Corp.
6410 Poplar Ave.
Suite 395
Memphis, Tenn. 38119
(800) 835-8527

Price:
$7,560

GETTING STARTED

The first thing we noticed about the Phonecell-4M after its arrival at our offices was its size and weight. The unit's dimensions are approximately 19 by 19 by 8 inches — about the size of a midsize suitcase.

Its relatively small appearance, however, belies its mass. Phonecell-4M weighs nearly 70 pounds due, in large part, to the lead-acid batteries (similar to the ones used in automobiles) within the unit that provide backup power. These batteries provide between five and 50 hours of transmitting power, depending on the activity levels.

The unit comprises a metal casing that contains the backup batteries and almost all of the cellular hardware, with the exception of the antennae, which are necessary for accessing the cellular network. The casing has brackets for wall mounting, but we decided to place the unit on a sturdy table against a wall, leaving enough room to access the RJ-11 and coaxial ports (for antennae connections), as well as the AC power cord port located on the bottom of the case. The front panel of the case is secured through two simple locks.

Users should consider the placement of this system carefully. The Phonecell-4M doesn't provide an automatic cutover to cellular service when wired lines go down. Instead, devices must be connected — either directly or through a wiring hub — to the individual transceivers when the cellular service is needed.

Accordingly, it should be placed in an area that allows convenient access to the RJ-11 ports on the transceivers.

Continued on page 45

Planning for disaster

Shoring up the local loop has long been a concern for telecommunications managers, but local carriers now offer a plethora of options to avoid problems with local access outages. Most local carriers offer some sort of Digital Access and Cross-Connect System-based redirection service that will reroute traffic over an alternate set of telephone lines in case of an emergency.

However, most of these services are manually activated, meaning the local carriers have to be notified so they can redirect the traffic. For instance, NYNEX Corp.'s Enterprise Network Service sports an Emergency Planning option, which sends calls to another location if there is problem with a customer's private branch exchange or with local service.

The carriers are also getting better at watching out for potential problems in the local loop — becoming more proactive in the process. MCI Communications Corp.'s Sentry program, for instance, uses Enhanced Superframe Format technology to provide performance monitoring on T-1s throughout MCI's voice and digital data network, enabling the carrier to detect problems with local circuits. MCI's Sentry proactively opens a trouble ticket once degradation is detected and, in most cases, before the circuit fails completely.

Telecommunications managers needing to minimize the effects of local outages should look into the services offered by their local carriers. It's better to have protection and not need it, then to need it and not have it.

D. Briere

Continued from page 44

The Phonecell-4M comes with a Motorola handset, which allows users to program and test the unit, as well as an owner's manual that clearly details installation programming and operating procedures.

The Phonecell-4M uses multiple layers of fuses to withstand "dirty" power supplies, such as those affected by frequent lightning strikes. The critical components of each cellular transceiver are protected through the implementation of multiple fuse layers.

As for antennae connections, users are provided with different options so they can maximize the quality of cellular transmissions for their respective geographic locations.

One option is a directional antenna for areas where users need to establish as direct a connection to the nearest cell as possible. A second option is a standard omnidirectional magnet-mounted cellular antenna such as the ones typically used on automobiles.

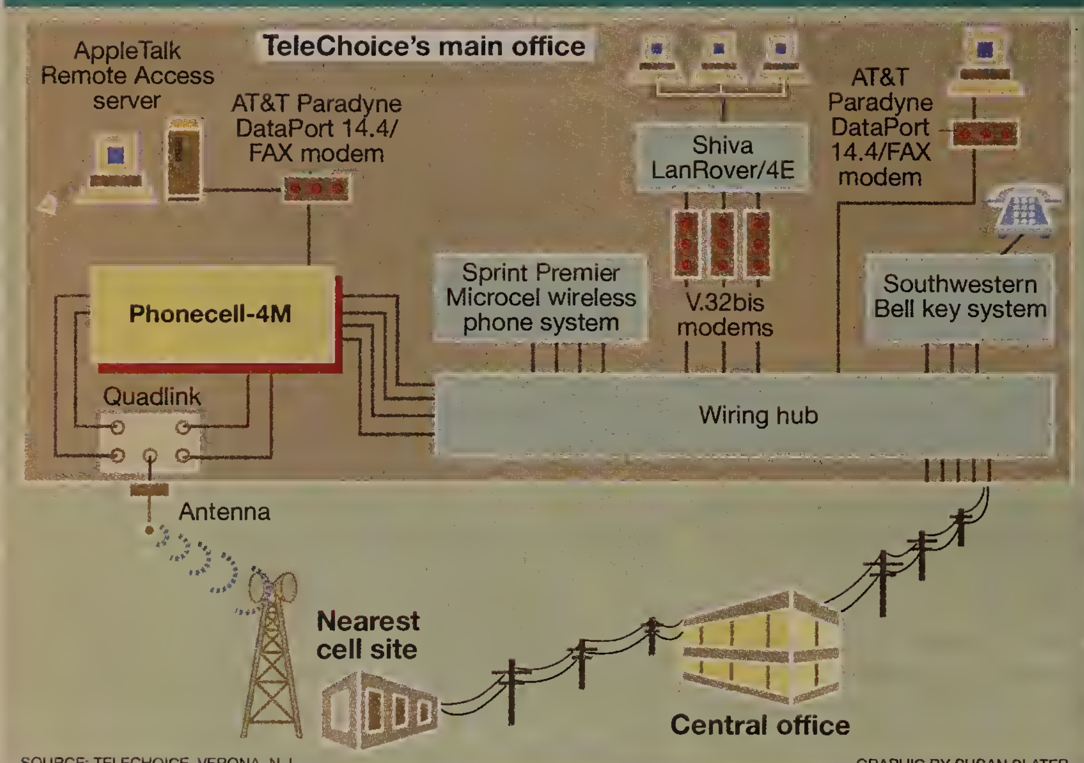
Antenna installation is further customizable through the use of Telular's Quadlink, a passive antenna combiner that allows four cellular transceivers to use one antenna, thus eliminating the need for separate antennae for individual transceivers.

Despite a location atop a ridge in New Jersey overlooking the Manhattan skyline, our offices are situated in a rather wireless-unfriendly environment. We enjoy high-quality transmission provided by Bell Atlantic Mobile but are affected by several natural and man-made obstructions. Therefore, we chose to use the Quadlink and one omnidirectional antenna. The unidirectional antenna was not appropriate because of the lack of a clear line of sight to a nearby cell. We placed the 13-inch antenna outside a nearby window.

The Quadlink component worked quite effectively, letting us use a single antenna with four cellular lines simultaneously. Although we didn't run into any problems with this setup, the Quadlink instruction manual warns of a potential 75% loss of transmitting power when using the antenna combiner.

For some of our tests, we also used multiple antennae and found no significant performance differences between the two setups.

Calling out to the world


TeleChoice's main office
AppleTalk Remote Access server
AT&T Paradyne DataPort 14.4/ FAX modem
Shiva LanRover/4E
AT&T Paradyne DataPort 14.4/FAX modem
Phonecell-4M
Sprint Premier Microcel wireless phone system
V.32bis modems
Southwestern Bell key system
Quadlink
Wiring hub
Antenna
Nearest cell site
Central office

SOURCE: TELECHOICE, VERONA, N.J.

GRAPHIC BY SUSAN SLATER

HOW WE *did it*

We connected AT&T Paradyne DataPort 14.4/FAX modems, a Sprint Corp. Premier Microcel 2400 wireless phone system, our Southwestern Bell Corp. key telephone system and our Shiva Corp. LanRover/4E modem pool (U.S. Robotics, Inc. Courier V.32bis and Zypcom, Inc. Z32t-SX V.32terbo modems). We used a 105K-byte compressed file to measure file-transfer speeds. In addition, we experimented with transmitting faxes through the Phonecell-4M device.

To simulate a remote access connection, we disconnected a computer from our Ethernet network, connected it to a DataPort modem and, using AppleTalk Remote Access, dialed in to our own network through the Phonecell-4M.

GETTING ACTIVE

Once we set up the Phonecell-4M unit, we established a connection between the unit and a local cellular provider. The procedure we followed to activate the Bell Atlantic Mobile lines was twofold. First, we provided Bell Atlantic with the electronic serial numbers (ESN) for each of our four transceivers. These eight-digit alphanumeric codes are located on the inside panel of the Phonecell-4M unit. Then, Bell Atlantic Mobile provided us with the essential data — cellular telephone numbers, system identification number and station class mark — to program the individual transceivers.

We entered this information into the Phonecell-4M via a Motorola, Inc. cellular-style handset. That was easy enough, but connecting the Motorola handset to each transceiver was not as easy as it should have been. The RJ-45 ports for each transceiver are somewhat inaccessible, making the task of connecting the handset difficult for all but the smallest sets of hands in the office.

We ran into some problems because the hardware's labeling was a little misleading. We had some trouble matching the ESNs to their respective transceivers and mistakenly swapped the ESNs with one another during the programming stage. This misstep took nearly two weeks to resolve, as we traded calls with Bell Atlantic Mobile and Telular. The Bell Atlantic Mobile cells returned tones signifying that the ESNs had been properly programmed. In fact, they had been, but because we did not match the labels to the transceivers, we had difficulty detecting the problem.

Once the Phonecell unit was programmed and connected to the Bell Atlantic Mobile cellular system, all we had to do to access the cellular net was to connect assorted key systems, fax machines and standard telephones, which was as simple as plugging and unplugging RJ-11 cables.

CUTTING THE CORD

To fully test the Phonecell-4M across our standard business applications, we connected AT&T Paradyne DataPort 14.4/FAX modems, a Sprint Corp. Premier Microcel 2400 wireless phone system, a Southwestern Bell Corp. key telephone system and a Shiva Corp. LanRover/4E modem pool, which contains U.S. Robotics, Inc. Courier V.32bis and Zypcom, Inc. Z32t-SX V.32terbo modems. We also experimented with sending faxes through the Phonecell-4M.

> Although our location is particularly poor for cellular transmissions, the Telular unit provided adequate connections to the cellular network for both voice and data applications.

The key to providing wireline-like communications to any connected device lies in the Phonecell's ability to mimic central office-based dial tone through its proprietary MaxJack interfaces. The Phonecell receives the dialed digits from attached devices, then retransmits them to the cellular carrier. The Phonecell-4M is designed to use standard off-the-shelf telephone equipment. There is no need for a Send button, as is often found on car phone handsets.

After we connected the Microcel 2400's Common Control Unit, the central processor between the phone lines and the handset radio transmitters to the Phonecell-4M, we were able to hear a dial tone when we picked up any of the four lines. We could then dial any telephone number, as if we were using our wired phone service.

Connecting the internal wired key system was just as easy, and we didn't encounter any problems in operation. Preprogrammed speed-dial capabilities still worked, and there were no significant delays in call connection times. Access to the public network via the cellular network was both seamless and transparent. Of course, the calling charges were billed to the cellular account and were, therefore, significantly higher than the cost of using the local carrier's land-lines.

Our next trial involved the use of AT&T Paradyne DataPort 14.4/FAX modems. These implement the new AT&T Paradyne Enhanced Throughput Cellular (ETC) protocol designed to provide high throughput and reliable transmissions over the cellular network (*NW*, May 16, page 51).

We established a connection with a local bulletin board system (BBS) that was not running an ETC modem. Over the cellular network, the best connection that the AT&T Paradyne modem could establish with the land-line BBS was a 4.8K bit/sec V.42bis connection, and the time required to transfer a 105K-byte compressed file using the Zmodem protocol ranged between 2 and 3.5 minutes. In contrast, the modem connected at 14.4K bit/sec over land-lines, and the same transfer took only 31 seconds.

GOING REMOTE

To simulate a remote access connection, we disconnected a computer from our Ethernet network, connected it to a DataPort modem and, using AppleTalk Remote Access, dialed into our net through the Phonecell-4M. We were again able to establish a 4.8K bit/sec V.42bis connection. This link proved more than adequate for sending and receiving CE Software, Inc.'s QuickMail. Several file-transfer operations showed the time required to upload a 105K-byte compressed file ranged from three to five minutes.

When we reversed this setup — dialing through land-lines to access a temporary AppleTalk Remote Access server connected to Phonecell-4M — the results were comparable.

To test the Telular equipment's versatility, we experimented with sending faxes through the cellular network. We found that faxes were reliably transmitted 50% percent of the time, a figure we found encouraging, given the poor cellular conditions in our area. Some of the faxed pages we received were smudged and characters were illegible at times, but, for the most part, the faxes that we successfully transmitted through the Phonecell-4M were of fairly good quality. Failed connections were the underlying cause of most of the faxes that did not go through.

The Phonecell-4M does its job. Although our location is particularly poor for cellular transmissions, the Telular unit provided adequate connections to the cellular network for both voice and data applications. In fact, transmissions through the Bell Atlantic Mobile network reached 9.6K bit/sec during some of our application testing.

This capability comes at a price, however — in the form of both lower data communication speeds and the higher costs associated with activating and maintaining cellular service. But for sites that cannot afford to be out of touch when wired lines go down, this extra cost may turn out to be a relative pittance. The Telular Phonecell-4M unit retails at $7,560 and is well worth the price for sites that need the added insurance.

➻Iellimo Jr. is a research analyst at TeleChoice, Inc., a Verona, N.J.-based consultancy. He can be reached at (201) 239-0700 or via MCI Mail at 445-4690.

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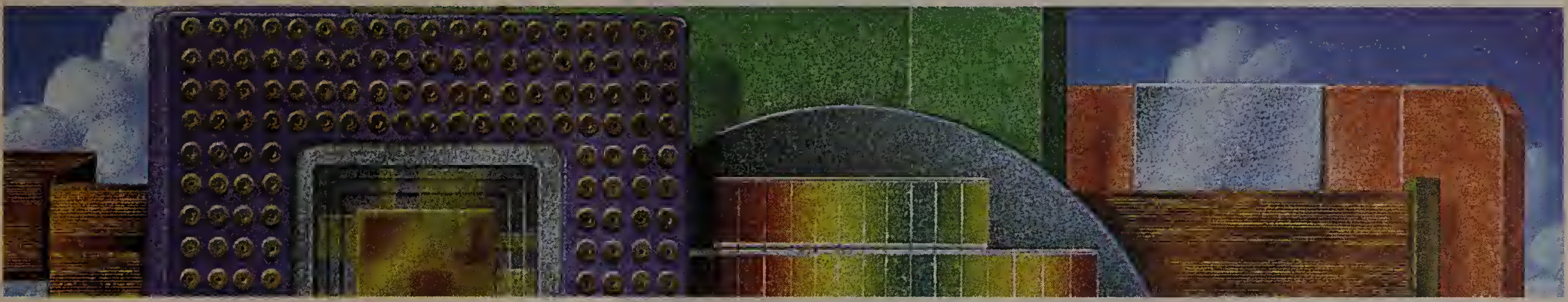

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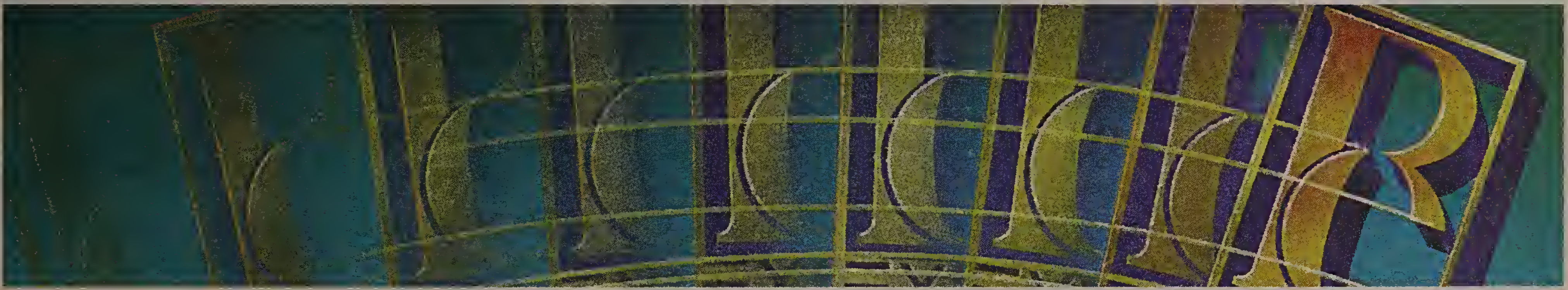

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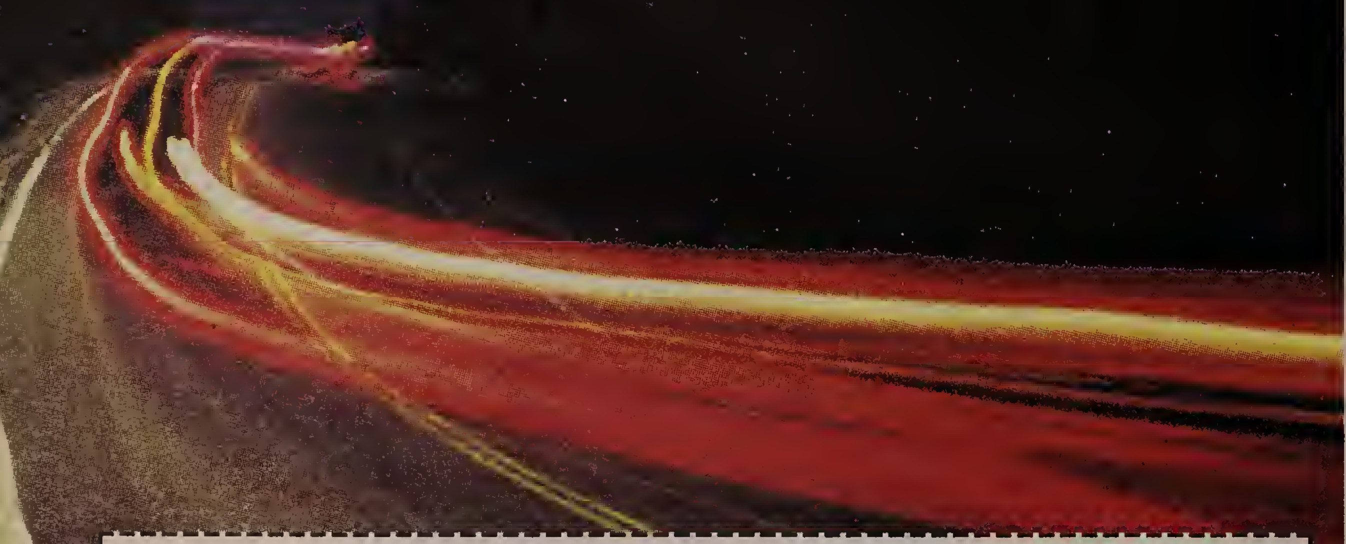

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NYSERNET cofounder **Richard Mandelbaum** *laid groundwork for Information Superhighway*

Profile

BY JERRY LAZAR

As users speed down the Information Superhighway a few years from now, they probably won't give much thought to the architects who built it or the series of technical firsts that went into its construction.

But without network innovators like Richard Mandelbaum, construction of the Information Superhighway still would be just a dream. As cofounder and chairman of the New York State Educational Research Network (NYSERNET), Mandelbaum spent most of a decade helping to assemble the Northeast's portion of the National Science Foundation's (NSF) national data highway, which interconnects supercomputing facilities, research laboratories and schools, and is a precursor to the Information Superhighway. First proposed in 1985, NYSERNET now connects about 200 university, industry, government and library affiliates in a statewide network and provides a gateway to the Internet.

Mandelbaum steered New York state's regional network through a series of firsts: NYSERNET was the first regional Transmission Control Protocol/Internet Protocol-based network comprised of T-1 links; the first regional network to play a big role in development and deployment of the Simple Network Management Protocol; and the first U.S. user of X.500 directory services.

These achievements are more impressive when you consider Mandelbaum is a mathematician as opposed to a communications specialist or computer scientist. His transition to high technology took place at the University of Rochester between 1977 and 1992.

He joined the University of Rochester staff as an assistant professor of mathematics and ended up vice provost for computing. Such career changes aren't unusual: Many computer scientists were trained as engineers or physicists. Friends say the change left Mandelbaum with a wider perspective on telecommunications and technology.

"Richard has developed from a mathematician to somebody who deeply understands the policy and technical issues [of regional research networks]," says his friend and colleague David Farber, professor of computer science at The Pennsylvania State University. "He is not really a technician. He sits at that nice point where he understands networking, but he can look at it as someone from outside computer science.

"Richard knows what he doesn't know," Farber says. "That's a very good trait. A lot of people in his position become prey to the Nobel Syndrome: They become instant experts on everything. That has never happened to Richard."

In one way, Mandelbaum's background made him highly suited to run NYSERNET: He is a New Yorker to the core. With an ever-present beret cocked jauntily to one side, the gray-bearded Mandelbaum's words come out at a tempo and cadence instantly familiar to anyone who has ever been near the Hudson River. Mandelbaum was born and raised in Brooklyn, mere miles from the site of Polytechnic University, where he currently serves as director of the Center for Advanced Technology in Telecommunications (CATT).

AT THE START

NYSERNET, Mandelbaum recalls, grew out of the NSF's desire to tie New York's supercomputing facilities together. University supercomputing sites in New York were isolated at the time, and the NSF believed that tying upstate sites such as Cornell University together with other facilities would allow more access to the expensive systems. Mandelbaum teamed up with three colleagues to present a proposal that went far beyond the NSF's vision.

"As we proposed it in 1985, supercomputing became only a small part of the network, even though that's what the NSF was interested in," Mandelbaum says. The network, as Mandelbaum and his colleagues visualized it, would include all the infrastructure of all universities with supercomputing facilities. And the plan did not end there. "We had a larger vision, to expand to library and medical communications," Mandelbaum says.

Those ideas were advanced for the mid-1980s, but not exactly revolutionary, as they were being tossed around by a group of 50 or so people in some key centers such as Cornell University and the University of Chicago. The NSF agreed to provide initial funding, and NYSERNET was launched.

NYSERNET was never envisioned as a strictly academic net. "We realized early on there would have to be commercial investment," Mandelbaum says. Major New York-based companies including Xerox Corp. and IBM were involved from the word go.

"NSF never funded the whole thing," he says. Because of this, NYSERNET turned to other sources such as New York Telephone Co., which provided the circuits.

As NYSERNET began coming on-line, the network architects confronted unique challenges. Among the first was the insistence on T-1 connectivity. "NYSERNET has been T-1 since its conception," Mandelbaum says. "We needed to provide peer-to-peer connectivity. There were already powerful workstations out there — Sun [Microsystems, Inc.] engineering stations and so on — and we wanted the libraries to be accessible." T-1 had never been implemented on that scale before, and computer scientists had to learn how to take advantage of the high-speed links.

Management also became an issue. "We had a certain difficulty between phone lines and TCP/IP not working together," Mandelbaum says. "The telephone companies would check and the lines were up. But the network wasn't working. We had to figure out what was going on." That is when NYSERNET turned to SNMP, which was being developed at the time to manage TCP/IP-based nets.

Title: **Director of CATT and professor of mathematics at Polytechnic University, New York.**
Innovation: **Cofounder and chairman of NYSERNET.**
Education: **B.S. degree in mathematics from Rensselaer Polytechnic Institute. Masters and doctorate in mathematics from Princeton University.**
Professional history: **Assistant professor at Newark College of Engineering and the University of Massachusetts. Visiting professor at Tel Aviv University. Professor and vice provost at the University of Rochester.**

GROWTH OF A GURU

By the time Mandelbaum became involved in NYSERNET, his transformation from mathematics to telecommunications was complete. Mandelbaum was specializing in studying topology when the transformation started.

"I was doing some calculations on topology," Mandelbaum says. "I was doing a lot of computing." But things within the computer environment at the University of Rochester were crazy at the time. "I never finished the [topology] paper. I started working with the computers instead."

While Mandelbaum was made a full professor of mathematics in 1987, his reputation in the telecommunications field grew steadily through his involvement with NYSERNET. He was granted a professorship in the electrical engineering department at the University of Rochester in 1991, but he would stay there only one more year.

"We got a little tired of Rochester," Mandelbaum says. "I'm a Brooklyn boy. When this offer [from CATT] came along, I took it. It was satisfying, from a personal point of view — not only deploying, but creating technologies."

Mandelbaum began his five-year term as director of CATT in 1992. At CATT, he researches such topics as network security, broadband networking and image compression while continuing to innovate. Running on an Apple Computer, Inc. Macintosh on his desk is a videoconferencing system he had a hand in building using off-the-shelf parts. The videoconferencing system enables eight members of a NYSERNET committee to meet face to face yet remain in their offices.

While he considers himself a researcher at heart, Mandelbaum nevertheless insists on teaching at least one course a year. "I'm getting ready to teach a course in TCP/IP. You can't be part of a university and not teach. You'd lose contact with students and forget that there is a dual mission: research and teaching."

➻ Lazar is a free-lance writer in Cliffside Park, N.J.

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Help desk

Continued from page 2

chooses to best represent the routers, LANs, WANs, links and applications used within their network. Users build a representative model of their networks by connecting these building blocks. Packet-by-packet simulation is then used by the modeling tool to determine the effectiveness of the existing network design. Further analysis can be performed by adding new building blocks and rerunning the simulation. CACI Products Company's Comnet III and Cadence Design Systems, Inc.'s Block Oriented Network Simulator PlanNet provide these modeling capabilities. For more product information, call CACI Products at (619) 457-9681 and Cadence Design Systems at (800) 223-3622.

To measure user response time at the workstation at a single point in time from two defined end locations, network analyzers, network probes and protocol utilities can be used. However, these tools do not provide a complete understanding of network response time, especially as the network grows in size and complexity, and the usage patterns begin to vary. Network simulation tools are also required to understand the effects of these variables.

Our company has a Shaffstall Corp. PC-3480 tape cartridge reader connected to our Novell, Inc. NetWare network. Once a week, eight cartridges are created from the IBM mainframe, and 700M bytes of data are downloaded to the Novell, Inc. server. We are considering migrating from the mainframe to multiple Reduced Instruction Set Computing (RISC) or Hewlett-Packard Co. machines. Is there a product that would allow us to directly attach a file server or node on the network to the RISC or HP platform? We would like to bypass the tapes with a quicker and easier method.

Kevin Pendergast, Chicago

Ronald Nutter, director of technical services at 900 Support, a 24-hour, seven-day-per-week NetWare technical support company in Lake Oswego, Ore., replies:

As long as the RISC or HP platform is running Unix or an equivalent, you should be able to transfer data back and forth between it and the Novell server by using a Unix connectivity software product, such as Novell's FLeX/IP or NetWare NFS.

NetWare FLeX/IP allows Unix and NetWare users to share files regardless of their native computing environment. It supports the File Transfer Protocol (FTP), which allows Unix users to transfer files to and from NetWare servers using native FTP commands.

NetWare NFS gives Unix users access to the NetWare environment while maintaining all the features of their native operating system environment.

Flex/IP costs $995 per server. NetWare NFS costs $4,995 for a single server and $14,995 for a five-server pack. For more information on these products, call Novell at (800) 638-9273.

Letters

Continued from page 40

second, the one standards process that *does* work.

The OSI *protocols* proposed by the International Standards Organization are unnecessary. But the *concept* of the layered model with clearly defined interfaces is one of the most important things to happen to networking. We shouldn't throw the baby out with the bathwater. If protocols stick to the model's concept and don't violate layer interfaces, they won't need to be replaced with new OSI protocols.

This is the grand irony of OSI. For example, the Transmission Control Protocol/Internet Protocol will never be replaced across-the-board by the OSI protocols. Parts of it may change: Connectionless Network Protocol could replace IP, File Transfer, Access and Management (FTAM) may supplement File Transfer Protocol, X.500 may be added on top, and your guess is as good as mine about X.400. But to do this, we don't need to replace TCP with the OSI transport mechanism TP0, Simple Network Management Protocol with Common Management Information Protocol, Open Shortest Path First with Intermediate System to Intermediate System, and so on — which is the whole point of the OSI model.

While the international standards bodies don't work as well as they should, lack of any standards would be worse. The one standards process that does work, which other bodies should pay more attention to, is the Internet's. The request for comment process requires that several independent, interoperating reference implementations be developed before a standard will be considered. This ensures that only real-world solutions are proposed for standards.

For example, while dozens of X.400 implementations don't even exist (forget about interoperate), dozens of different Simple Mail Transfer Protocol implementations exchange thousands of messages every day on the Internet among 10 million users. You only get that from real, workable standards.

Alan Millar
Network analyst
MediaVision, Inc.
Fremont, Calif.

Trench dwellers have poor view

Regarding Jim McCabe's letter in response to my column "Plan ahead or get left in the dust on the Information Superhighway" (May 9, page 43):

The sad fact is that most people in the trenches *are* behind the times as well as their superiors that are guiding them. Technology visionaries are not found in the trenches. Like the generals and field marshals, they are found looking at things from atop the hill where they can see the big picture.

If we are "clueless and confused," I suggest Mr. McCabe and others who profess to be "in the trenches" climb out and take a look around. When they see that other organizations, as well as countries, are further along in deploying technology and sophisticated networks, including video on demand, they might be more focused in taking some quick giant steps forward instead of listening to their fellow trenchmen expound on what a great job they did connecting their 20-device LAN on twisted pair.

As for hard experience, I am consulting on a major project that will have the largest private Synchronous Optical Network in the country (more than 210 miles of fiber-optic right-of-way) as well as researching video on demand for a telephone company in the Pacific Rim — so I speak on leading-edge technology from hard reality, not hype.

James Carlini
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Hinsdale, Ill.

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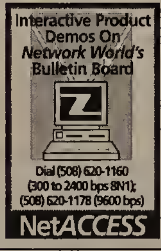
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May

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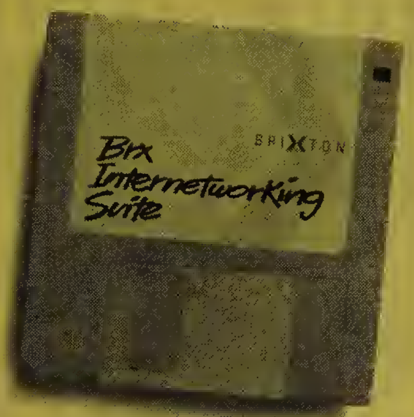

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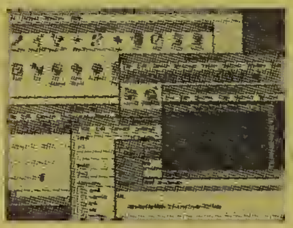

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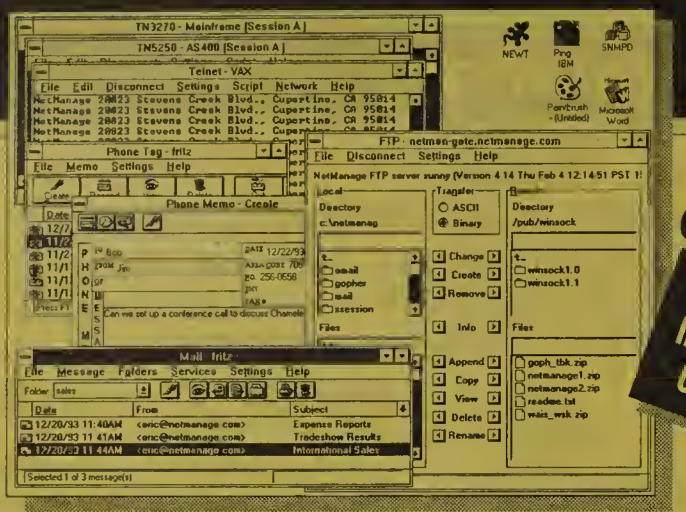

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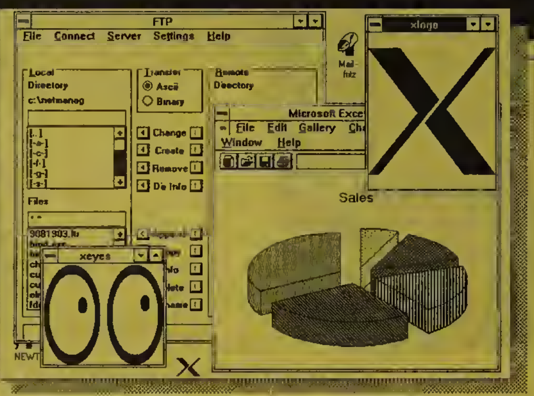

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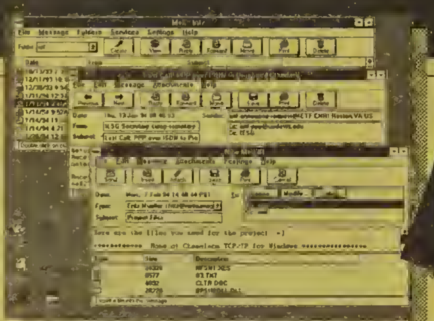

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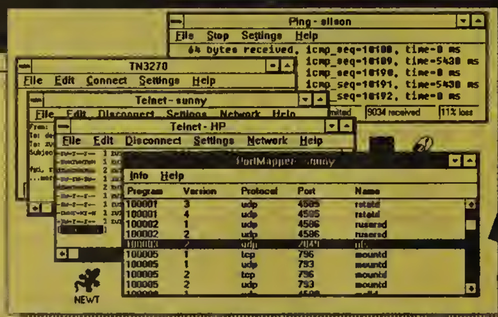

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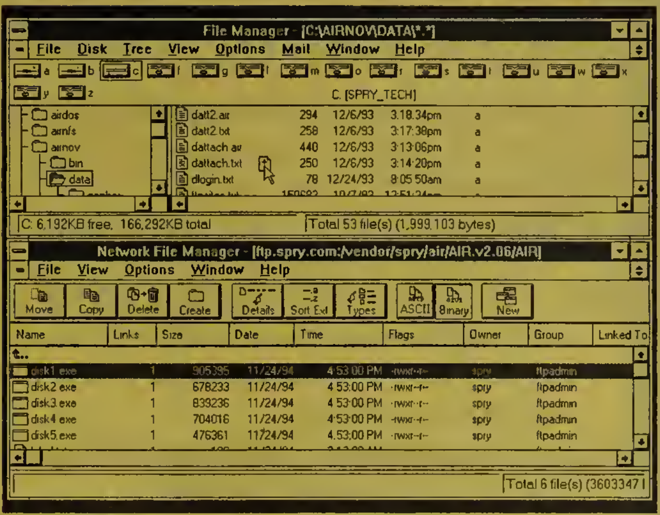
File Manager - [C:\AIRNOV\DATA\*.*]
File Disk Tree View Options Mail Window Help
C: [SPRY_TECH]
airdos
airnfs
airnov
bin
data
Network File Manager - [ftp.spry.com:/vendor/spry/air/AIR.v2.06/AIR]
File View Options Window Help
Move Copy Delete Create Details Sort Ext Types ASCII Binary New

```
datt2.air        294  12/6/93   3:18:34pm  a
datt2.txt        258  12/6/93   3:17:38pm  a
dattach.air      440  12/6/93   3:13:06pm  a
dattach.txt      250  12/6/93   3:14:20pm  a
dlogin.txt        78  12/24/93  8:05:50am  a
C: 6,192KB free, 166,292KB total    Total 53 file(s) (1,999,103 bytes)

Name       Links  Size    Date      Time        Flags       Owner  Group     Linked To
disk1.exe  1      905395  11/24/94  4:53:00 PM  -rwxr--r--  spry   ftpadmin
disk2.exe  1      678233  11/24/94  4:53:00 PM  -rwxr--r--  spry   ftpadmin
disk3.exe  1      839236  11/24/94  4:53:00 PM  -rwxr--r--  spry   ftpadmin
disk4.exe  1      704016  11/24/94  4:53:00 PM  -rwxr--r--  spry   ftpadmin
disk5.exe  1      476361  11/24/94  4:53:00 PM  -rwxr--r--  spry   ftpadmin
                                        Total 6 file(s) (3603347
```

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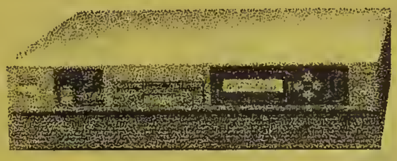

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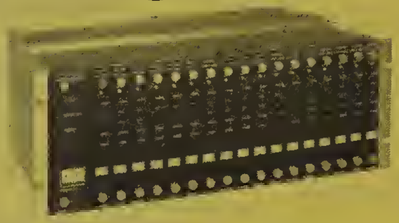

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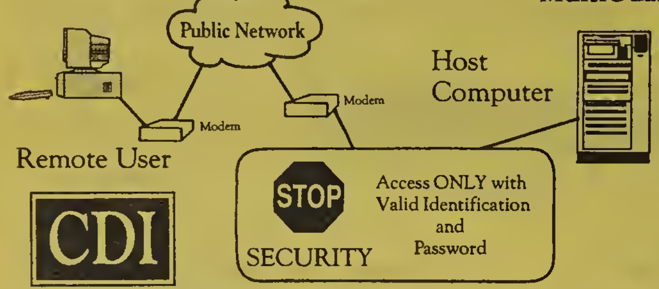

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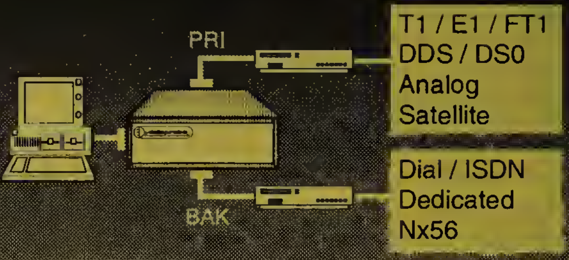

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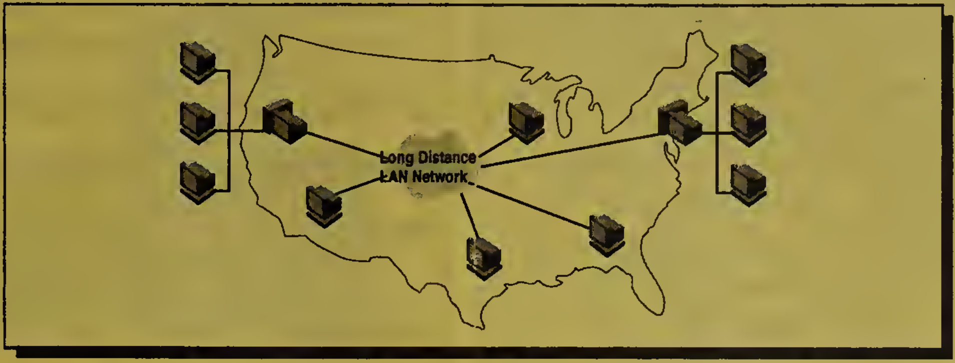

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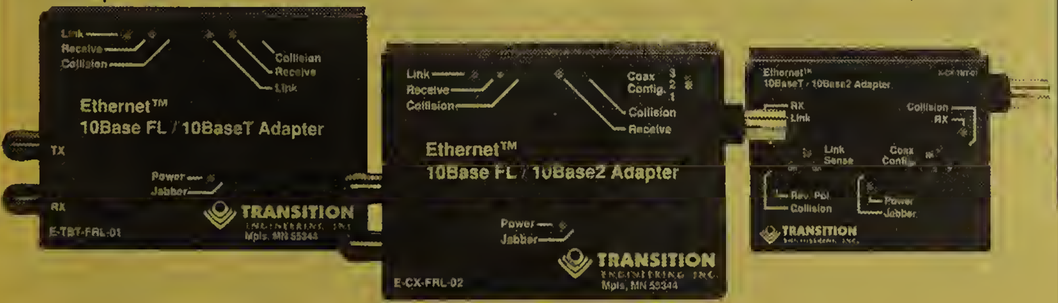

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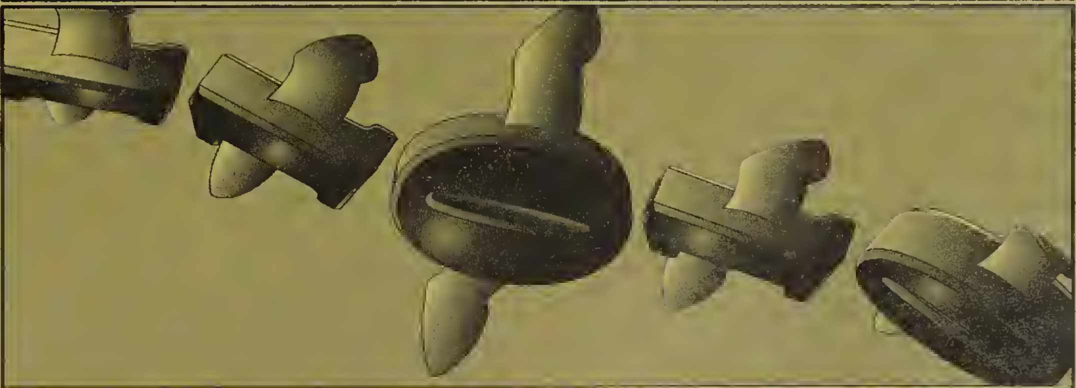

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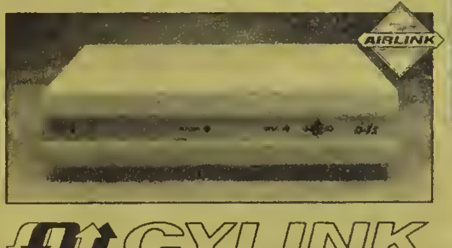

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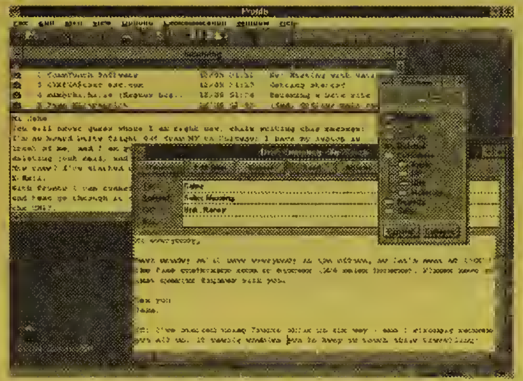

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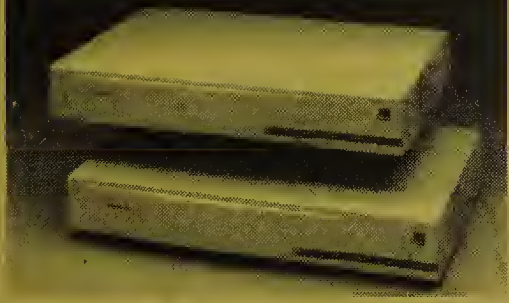

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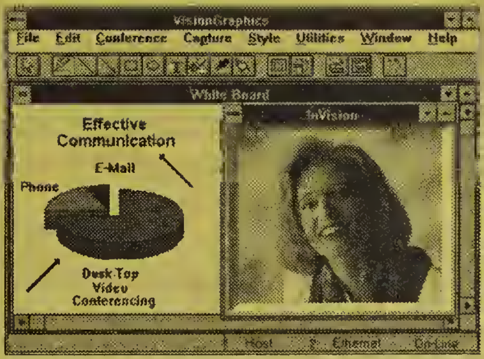

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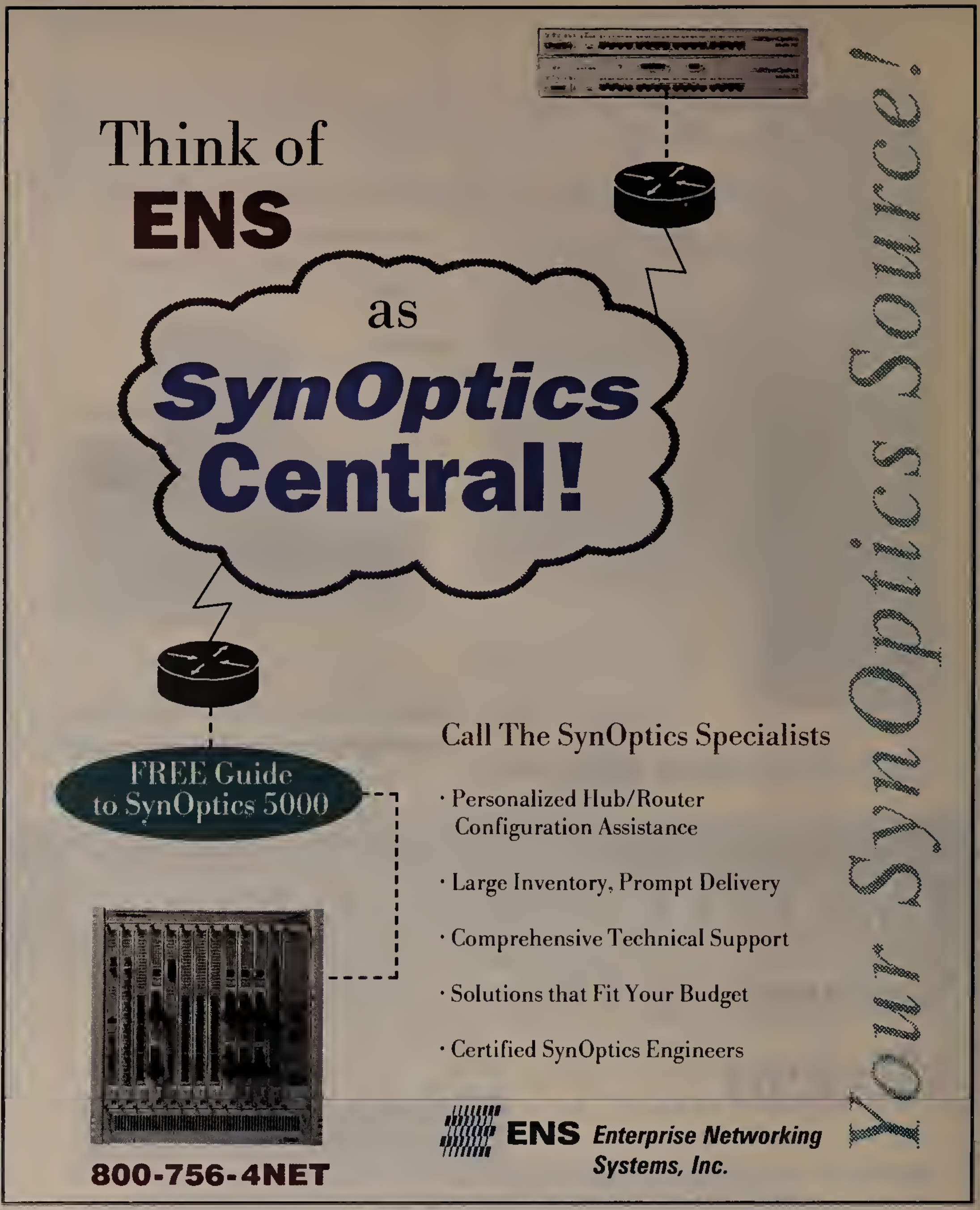

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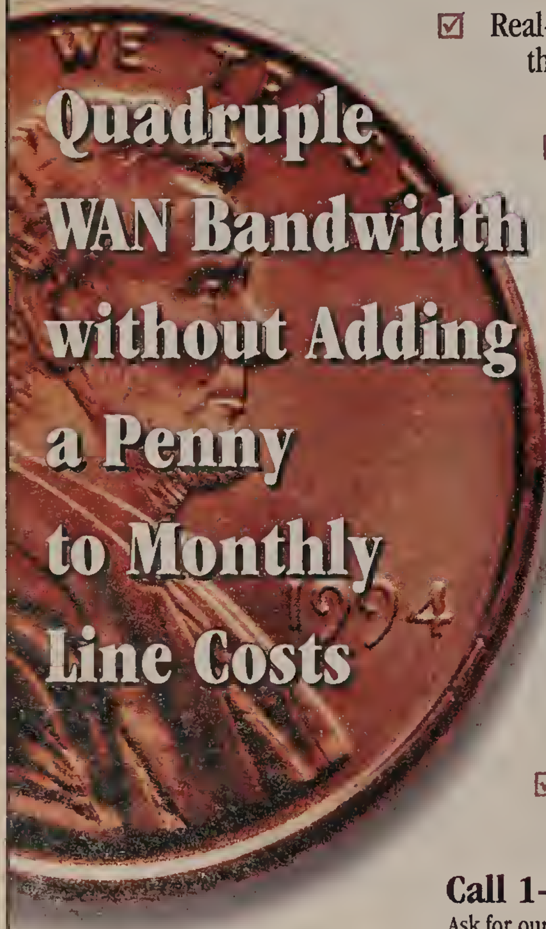

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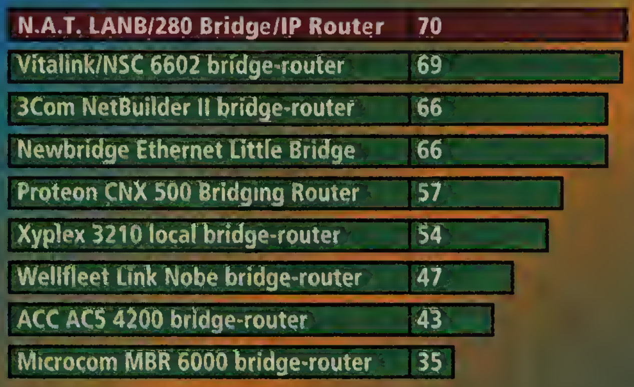

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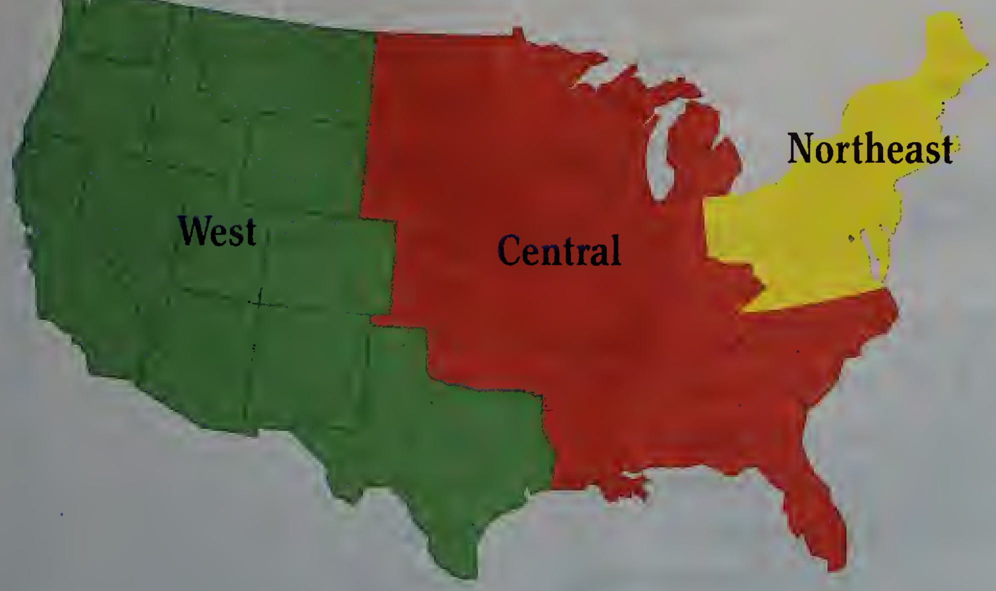

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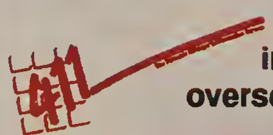

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DIRECTOR OF COMMUNICATIONS

Major southern New England hospital is migrating from mainframe to client server computing. Offering substantial challenge coupled with extraordinary opportunity, this position reports to the Vice President of Data Systems and will be responsible for the implementation, rollout and daily operation of multiple LANS providing service across an extensive campus-wide fiber optic backbone network.

Candidates must be thoroughly familiar with 802.3 10BaseT, FDDI, intelligent contractors and have significant router implementation experience. Complete competence with DOS, UNIX, Netware and Windows coupled with hands-on experience with IP subnetting and GUI based SNMP network management software is required. Recent high level of experience with WAN implementations including T-1, Frame Relay and DDS is an advantage.

Other requirements include Masters Degree and ten to fifteen years of Data Processing experience with a minimum of seven (7) years of related experience in data communications. Candidates must demonstrate extraordinary proficiency in networking technology; exhibit strong interpersonal skills and be clearly able to conceive, implement and manage the hospital's new information and communications initiative.

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Routers

Continued from page 1

"DLSw has been validated as an appropriate technology for Fortune 1,000 companies, and not just an architecture with a lot of hot air," said Kevin Tolly, president of Tolly Group. "These tests prove that DLSw does, in fact, work and will not always seriously impede performance, which had been a concern going into these benchmarks."

3Com and Cisco have optimized their proprietary approaches to take advantage of their router's respective strengths, so Tolly was not surprised that they performed so well. But he cautioned against comparing their results with the "prestandard" DLSw tests.

Figure 1

Clocking DLSw

Results of the Tolly Group test measuring throughput in bit/sec for prestandard implementations of DLSw when transporting APPC packets between two token rings across a T-1 link.

Product	Packet size (bytes)			
	256	512	1,024	2,048
IBM's 6611 Network Processor	32K	64K	1.26M	1.41M
Proteon's CNX 600	1.33M	1.39M	1.43M	1.44M*
Wellfleet's Backbone Concentrator Node	79K	91K	91K	1.29M

*The CNX 600 software tested supported a maximum packet size of 1,920 bytes, a limitation that has been removed in a subsequent software release.

GRAPHIC BY TERRI MITCHELL SOURCE: TOLLY GROUP, MANASQUAN, N.J.

"While both groups proved they could get the job done, it would be unfair to compare these results on a head-to-head basis since the methods were based on different schemes," he said. "It is fair, however, to question the differences in performance in the prestandard DLSw test."

Those disparities — especially with the smaller packet sizes — underscore the importance of router architecture, Tolly noted.

While the routers in general showed high throughput when handling the larger size packets, performance dropped off significantly with the smaller frames, with the exception of Proteon (see Figure 1).

Figure 2

Non-DLSw results

Results of the same test using Cisco and 3Com proprietary implementations.*

Product	Packet size (bytes)			
	256	512	1,024	2,048
Cisco's 7010 Multiprotocol Router	1.20M	1.32M	1.36M	1.44M
3Com's NetBuilder II	1.22M	1.36M	1.43M	1.48M

*The 7010 test was run using Cisco's Remote Source Route Bridging-Local Acknowledgement scheme, while the NetBuilder II test used 3Com's LLC2 Tunneling method.

GRAPHIC BY TERRI MITCHELL SOURCE: TOLLY GROUP, MANASQUAN, N.J.

Proteon attributed its performance to its processor. "The CNX 600 hardware architecture lends itself to consistent performance because we run all software functions in the [Advanced Micro Devices, Inc.] 68030 processor, which is extremely fast," said Ed Stern, net architect at Proteon.

Wellfleet was pleased with its showing but said it should fare better in a multiple-stream test since its symmetrical architecture — which includes a separate processor for each routing module — is optimized to handle more than one wide-area connection.

"In our first implementation of DLSw, we wanted to focus on reliability and robustness," said David Berman, director of IBM networking at Wellfleet. "We can now fine-tune the performance, which will really shine when multiple-link tests are done."

IBM also said it expects its 6611 to provide better performance when tested in the enterprise environment it was designed for — supporting multiple wide-area links and several SNA devices.

"The test results are a simple benchmark users can start with, but we'd like to see tests done with more links and link stations," said John Steigerwald, development manager for the 6611. "We hope to see tests on NETBIOS throughput and congestion control."

According to Tolly, one of the reasons Proteon may have done so well is its implementation of packet grouping, which is part of DLSw and allows smaller packets to be grouped together in a large frame and routed across the wide-area net at one time.

IBM also uses packet grouping, but based on the test results, it still needs to optimize that capability. Wellfleet said it will likely include packet grouping in a future DLSw release.

While Cisco and 3Com had strong results in their separate tests — each achieving near wire-speed performance at all packet sizes — they were also pleased with the prestandard DLSw tests because they plan to offer standardized versions.

"Based on the results of the [request for comment]-compliant version of DLSw, we don't expect a performance hit when we implement the technology in our routers by year end," said Andy Gottlieb, product manager for internetworking software at 3Com.

Users said the tests gave them a useful benchmark from which to evaluate router vendors but they'd like to see additional tests run.

"We'd really like to see tests done on multiprotocol throughput since that's what [DLSw] is really doing," said Frank Senter, network communications specialist with the Missouri Highway and Transportation Department in Jefferson City.

According to Robin Layland, principal consultant with Layland Consulting in West Hartford, Conn., the tests proved at least three things: DLSw does not penalize performance; users can get a fair amount of DLSw traffic over a T-1 link; and DLSw keeps SNA sessions up under heavy stress.

©Tolly Group: (908) 528-3300.

Can't we all just get along?

Router vendors working to develop Data Link Switching (DLSw) technology continue to beat one another up in an ongoing effort to gain a competitive edge.

The latest sparring centers around whether the DLSw specification should be delivered to the Internet Engineering Task Force (IETF), where it could ultimately become an industry standard, or remain in the APPN Implementors Workshop (AIW), where it is under development.

DLSw is already an informational request for comment (1434) on the IETF menu. The AIW last year stated its intent to submit a finished DLSw specification to the IETF for its official rubber stamp. While all involved preach standardization, there is argument over the best way to achieve it.

"We're not seeing a lot of cooperation on any front here," said Wayne Clark, manager of Systems Network Architecture development for Cisco Systems, Inc. "We've really spent so much time arguing over charter issues and other things that we haven't been able to do any work." He added Cisco would rather see DLSw go to the IETF because an IETF standard carries more weight.

AIW supporters cite many concerns in moving to the IETF, including patent protection issues, the overhead of doing standards work in two different places with two different charters and the fact that the IETF is an IP-centric group.

"Our concern is to get the standard approved in the group which more accurately reflects the user community we're targeting," said David Berman, director of IBM networking at Wellfleet Communications, Inc. "Since DLSw addresses the IBM community, the AIW is the best forum. While we won't hold out for IETF approval, we won't fight it if it ends up there."

"Everyone is so worried about what might be going on behind their backs, they aren't acting in the interest of the users," said Robin Layland, principal consultant with Layland Consulting in West Hartford, Conn.

M. Cooney and S. MacAskill

Taking a stand

Vendors that support DLSw remaining in the AIW:

- IBM
- Proteon
- Wellfleet

Vendors that want DLSw work to move to the IETF:

- Cisco
- CrossComm
- Data Connection, Ltd.
- Hypercom Corp.
- Netlink, Inc.
- Sync Research

Neutral vendor:

- 3Com

ISSC

Continued from page 1

object-oriented technology — Resource Object Data Manager (RODM), NetView Multisystem Manager/MVS and Advanced Peer-to-Peer Networking Topology and Accounting Manager (APPNTAM).

RODM is IBM's object-oriented database used to store network and systems management information and feed data to the Graphics Monitor Facility (GMF), NetView's color graphics monitor. As net topology or resources change, Multisystem Manager automatically updates RODM and RODM then updates GMF.

Multisystem Manager runs atop NetView and gathers topology and status data from LAN Network Manager or NetWare LANs. It builds objects representing those LAN resources for storage in RODM and updates them as their status changes.

APPNTAM discovers all nodes and links in an APPN net and builds a topology map in RODM.

RODM, which began shipping last year, comes with NetView Version 2 Release 3 or above. Multisystem Manager began shipping April 29, while APPNTAM will ship later this year.

With Multisystem Manager, ISSC can now define critical resources it needs to watch more closely than others, Debevec said. "We also can kick off automated responses to problems from here without having to have expertise in each of our eight primary sites."

ISSC is a wholly owned subsidiary of IBM, established in 1991 to handle systems integration and outsourcing contracts for IBM. Generally considered the No. 2 outsourcing firm behind Electronic Data Systems, Inc., ISSC runs the internal nets for IBM, Amtrak, Chase Manhattan Bank and other large users.

While ISSC is a close relative of Big Blue, it is not limited to using IBM technology. Each of its eight data centers, located in cities from Dallas to Bethesda, Md., are connected to Raleigh via Wellfleet Communications, Inc. routers supporting multiple T-1s.

"We are by no means roped into using IBM-only technology, but there is very little other technology on the market to let us centrally manage large SNA and LAN environments," Debevec said.

Each data center has multiple 4M and 16M bit/sec Token-Ring LANs running mostly SNA and Network Basic I/O System protocols, but also increasing amounts of Transmission Control Protocol/Internet Protocol traffic. More than 20 LAN Network Manager nodes keep track of the LANs, reporting data back to Multisystem Manager and RODM. The graphical format has proven to be more effective than LAN Network Manager's previous NetView interface.

"Operators had to look at multiple screens of text data as it flew by, making it nearly impossible to quickly detect a problem," Debevec said.

"Now if there's a problem, it's obvious right away because an icon turns red," he said. "The operator then clicks on the icon, and it immediately tells him what's wrong and what he should do about it. This procedure could've taken hours or weeks in the past."

Debevec said RODM and Multisystem Manager handle topology changes on the fly and make operators aware of those changes immediately. In the past, changes would have to be coded by hand sometimes days or weeks later. In addition, operators do not have to know the idiosyncrasies of each device or LAN because the objects defined in RODM tell them how to address problems.

Automation routines are also easily established within the objects so operators are relieved of mundane tasks, such as restarting a failed device.

While the firm now handles SNA and LAN traffic much better, Debevec said its single biggest requirement to move ahead is doing likewise for TCP/IP.

"We are beta-testing a new version of Multisystem Manager that lets us see and act on the TCP/IP devices from the same screen as the SNA and LAN data," Debevec said. "That capability gives us a huge operational benefit because, for example, if a router goes down, we can graphically see all of the devices affected by its failure, not just the failure itself."

IBM has not said when this feature will be generally available (*NW*, April 18, page 1).

APPN is also beginning to emerge in the ISSC net. Toward that, the firm has begun to deploy APPNTAM, which builds APPN objects in RODM for display on GMF. It also contains automation features so that when a problem such as a link failure occurs, APPNTAM can automatically attempt to restart it.

"Work still needs to be done in the APPN area. For instance, we can't get any detail from the mainframe APPN nodes yet," Debevec said. "This really isn't an issue yet, but by the end of the year, we'll have lots more APPN and then we'll need better coverage."

SDN

Continued from page 1

would dial into their SDN, which would serve as a gateway into the frame relay network.

"This should allow us to more securely and safely move volumes of traffic, as well as blend multiple protocols across one access pipe," said Barney Lykins, manager of network services for Navistar International Transportation Corp. in Oakbrook Terrace, Ill.

Security is enhanced, he said, because management of the various networks is consolidated with only one entry point to monitor at each site.

SDN customers Lykins (l.) and Fowler (r.) discuss SDN moves with AT&T's Starr.

The move also "deals with the Podunk factor," added Jim Fowler, director of strategic partnerships and systems integration at the trucking firm. Navistar has 150 remote offices that would otherwise have to spring for separate links into disparate services.

Lykins said Navistar approached AT&T about a month ago with the idea of SDN access into InterSpan and hopes to be a beta site for the service.

Praxair, Inc., a Canadian chemical manufacturer and SDN customer, could also benefit, said Ted Boynton, the firm's manager of telecommunications. He said his company is just beginning to implement frame relay in Canada, and when it embarks on its U.S. frame relay arm, it "would prefer one giant bill" for SDN and frame relay services.

The upcoming round of SDN integration parallels the way users of SDN-based voice and low-speed analog data services have long been able to dial into AT&T's Software-Defined Data Network for higher speed digital data transport, Starr explained.

Such integration is a way for AT&T to make its frame relay and other services attractive to existing users who, if having to buy separately maintained and billed services anyway, might be inclined to turn to different carriers for those various services, observed Rob Rich, director of global communications research at The Yankee Group, a Boston consultancy.

Telecommuter SDN status, for example, means that the phone number of an employee working at home would become part of that person's company SDN database in the AT&T net. The telecommuter's voice and data SDN calls would then automatically get merged onto the company's monthly SDN bill.

On the 800 front, AT&T reiterated its plan to wrap 800 and SDN services under a common offering dubbed OneNet. In addition to allowing users to garner larger bulk discounts, OneNet will offer integrated billing and support (*NW*, May 2, page 7).

Daniel Briere, president of the consultancy Tele-Choice, Inc. in Verona, N.J., said OneNet will be priced as a premium service, however, meaning it will cost more than combined 800 and SDN services. "Why should I have to pay more for that?" he asked. "I would expect the carrier to offer that service."

MCI Communications Corp. and Sprint Corp. each offer some of what AT&T is proposing, bet neither goes quite as far. For example, Sprint lets users pull 800 and switched data services under its VPN umbrella for volume discounts but offers the same for frame relay and Internet access only on a case by case basis. ⊿

Senior Writer Bill Burch contributed to this story.

LAN mgmt.

Continued from page 1

These capabilities will become more important as the concept of grouping disparate users together in collaborative workgroups without regard to physical location — know as virtual networking — takes hold.

"The industry has been rife with virtual LAN rap, but users really don't know who should be in what virtual workgroup because they have limited ways of knowing who's talking to who in switched environments," said Val Sribar, senior industry analyst at META Group, Inc. consultancy in Westport, Conn. "A new class of analyzer that could capture that information would help."

"The industry has been rife with virtual LAN rap, but users really don't know who should be in what virtual workgroup because they have limited ways of knowing who's talking to who in switched environments."

The first part of the SynOptics-Network General plan will focus on improving net analysis capabilities in shared nets via new functionality for SynOptics' LattisNet System 2000 and 3000 and Lattis System 5000 hub lines.

SynOptics will develop a line of Advanced Analyzer Agents to reside within its hubs and compile Remote Monitoring (RMON) information on both token-ring and Ethernet networks. Dubbed "probe-in-a-hub" by SynOptics, these agents will be a combination of hardware and software, depending on the hub.

The agents are expected to be available by the end of July and will range in price from about $3,000 to $7,000 for the 2000 and 3000 upgrades and come as a free software upgrade for the 5000.

SynOptics and Network General will also develop management applications using Network General's Foundation Manager software package, which will allow users to correlate this RMON data to isolate and resolve network problems.

In the second phase, which will likely be completed by year end, SynOptics will integrate Network General's Distributed Sniffer System functionality into the 5.0 version of Optivity, its network management package. This will let Optivity display RMON data and provide analysis for capacity planning and network modeling to optimize net configurations.

Users will be able to use software-based Sniffer probes residing in a hub or local net switch to monitor all segments supported by those devices, eliminating the need to purchase separate probes for every LAN.

Since competition in the Ethernet switch market centers on who provides the most bandwidth at the lowest per-port price, switch development involves integrating the fastest processor on the smallest board possible, according to Sribar.

"Those scaled-down architectures leave no extra room for an i960 management chip, meaning you can't cull any meaningful information from these devices," he said. "Users need basic detection schemes in these switches that can map information to an analyzer in order to keep the net under control."

The third phase will involve developing RMON Management Information Bases for frame switching and ATM nets, which will provide management data similar to token-ring and Ethernet RMON probes and agents. These capabilities are slated for early 1995. ⊿

Comments?
See "Contacts" box on page 2.

Digital

Continued from page 1

developed and marketed by Digital's software products group. It includes DECnet/OSI, Pathworks, Polycenter, TCP/ IP Services and DECnet/SNA software.

While Digital's asking price is not known, the network products business alone accounts for $500 million of Digital's $13 billion in annual revenue, according to Larry Walker, vice president and general manager of that group.

AT&T and BellSouth Corp. are being mentioned as probable buyers. BellSouth declined to comment, and AT&T did not return telephone calls by press time.

As many as 6,000 Digital employees could be removed from the company's payroll if a sale occurs, sources said. It is not known if a buyer or buyers would retain those employees or cut them loose.

It is also unknown if the acquirer or acquirers would purchase some or all of Digital's network products.

That Digital is offering its network products groups to the telecommunications companies is "all over The Street," said a financial analyst who requested anonymity.

Jim Corrigan, president of DECnet software developer Ki Networks, Inc., has heard from Digital sources that the firm is looking to consummate a deal by the end of its current fiscal year, which concludes June 30 or in early July.

A Digital spokesman said the company does not comment on "rumors of this kind." He added, though, that the firm is "looking at everything across the board" to determine what should be retained and what should be sold.

An employee in Digital's net products business said reports of a sale were floating around internally but that Walker quashed them. He added, though, that company officials said "nothing's sacred — everything's on the table."

The sale is an attempt to restore Digital to profitability. Following the latest quarterly loss — $183 million in the third quarter ended March 30 — company President and Chief Executive Officer Robert Palmer announced plans to slash 20,000 employees from the payroll and sell off businesses that were not among Digital's "core competencies" or key to future growth.

Some analysts doubted that AT&T would purchase Digital's net products business in light of the carrier's resale deals with hub giants Cabletron Systems, Inc. and SynOptics Communications, Inc. (*NW*, May 16, page 4).

"There were some talks of whether AT&T would buy Digital's networking business," said Todd Dagres, vice president of equity research at The Robinson-Humphrey Company, Inc., in Atlanta. "When it was announced that Cabletron and SynOptics were doing the AT&T deal, Digital lost out. As far as I'm concerned, this one isn't going to happen."

Nonetheless, competitors said Digital is banking its future on PCs, semiconductors and disk drives, while looking to pare off some of the software technology in which it has invested.

Digital users are concerned.

"We have paper mills in all kinds of unusual remote locations, and Digital's been real good about supporting all that stuff," said David Brillhart, senior coordinator at International Paper Co.'s Mobile, Ala., mill. "Our issue is mostly one of support."

Gerard Blanding, a customer data communications support official at Digital customer Equifax Services, Inc. in Atlanta, also expressed concerns about losing support.

"I'm hoping the support doesn't diminish," he said. "Product direction would be of concern, too, whether [the acquirer] is responsive to the needs of the communications world." ⊿

NETWORK WORLD

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Second-class postage paid at Framingham, Mass., and additional mailing offices. *Network World* (USPS 735-730) is published weekly, except for a single combined issue for the last week in December and the first week in January by Network World, Inc., 161 Worcester Road, Framingham, Mass. 01701-9172.

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ISSN number: 0887-7661.

BOB FISHER is the Systems Analyst at First of America Services, Michigan.

THE LONG AND THE SHORT OF CHOOSING A ROUTER AS TOLD BY FIRST OF AMERICA.	THE SHORT OF CHOOSING A ROUTER AS TOLD BY PROTEON.
"Primarily, we evaluated four routers — Cisco, Wellfleet, CrossCom, and Proteon — for SNA internetworking, IPX and IP capabilities.	"No contest."
"When it came to hardware configuration, Proteon provided extremely easy access. You could pop the cover off and readily change interfaces without having to string a bunch of cables. They provided flash memory for the operating system and configurations, so there was never any booting off a diskette. The LEDs on the front panel were also very nice. A quick look would tell you whether a given interface was up or not. None of the other router vendors provided that. In terms of speed and efficiency, Proteon beat the others hands down. And as far as the overall support for different topologies, Proteon worked well with everything. Unlike other brands we tested, the Proteon router was a true gateway.	"Our router is incredibly easy to use."
"Reliability was another major criteria for selecting First of America's new router. You see, if we can't service our customers, we're out of business. Our network ties together six hundred bank branches. These terminals simply can't go down. So choosing a router to carry this traffic wasn't a decision I took lightly. Proteon proved to have the reliability we need. And if any questions did arise, Proteon's support representatives were readily available and very knowledgeable.	"Proteon's reliability is second to none."
"Our bank is in acquisition mode, so integration is critical. After any merger, we have to integrate new networks into ours while migrating their applications. Right off the bat, our routers have to support all kinds of topologies. By deploying the Proteon DNX router at regional sites, we were able to provide these locations with SNA support very quickly.	"We'll integrate any multiprotocol network."
"In terms of overall technology and performance, I'd have to say the Proteon router is absolutely the best."	"Amen."

proteon

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1994 Editorial Calendar

NETWORK WORLD

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June 13	June 1	IBM Network Update	Unix Demographic Edition		Harvey Ad Study
June 20	June 8	Annual Budget Survey			
June 27	June 15	Buyer's Guide: Superservers	LAN World	PC Expo	Lead Service
				DCI DB and Client/Server World/Boston	
July 4	June 22	Buyer's Guide:			
		Internet Access Providers			
July 11	June 29	Test Series			Lead Service
July 18	July 6	Buyer's Guide:	Unix Demographic Edition		
		Document Management Systems			
July 25	July 13	Test Series	LAN World	DCI Managing Enterprise Nets	Lead Service
				Object World/San Francisco	
Aug 1	July 20	Buyer's Guide:			
		Net Management Applications			
Aug 8	July 27	Test Series		GroupWare '94/San Jose	Lead Service
Aug 15	Aug 3	Buyer's Guide: 800 Services			Lead Service
	July 15		Collaboration/ NetWorld + INTEROP Pre-show		
Aug 22	Aug 10	Test Series	LAN World		Lead Service
Aug 29	Aug 17	Buyer's Guide:	Unix Demographic Edition		Harvey Ad Study
		Groupware/Workflow			
Sept 5	Aug 24	Test Series			
Sept 12	Aug 31	Buyer's Guide: Routers	LAN World	NetWorld + INTEROP '94/Atlanta	Lead Service
		Annual Salary Survey			
		Test Series			
Sept 19	Sept 7	Buyer's Guide: ATM Products	Unix Demographic Edition	Networks Expo/Dallas	Lead Service
		NetWare Special Issue			
Sept 26	Sept 14	Test Series			
Oct 3	Sept 21	Buyer's Guide:	Unix Demographic Edition	TCA and UNIX Expo	Lead Service
		Switched Digital Services			
		Test Series			
Oct 10	Sept 28	Test Series			
Oct 17	Oct 5	Buyer's Guide:	LAN World		
		Net Management Platforms			
Oct 24	Oct 12	Test Series			
Oct 31	Oct 19	Buyer's Guide:			
		Videoconferencing			
	Sept 30		Collaboration/Comdex Pre-show		Lead Service
Nov 7	Oct 26	Wireless Communications Special Issue		CMA	Lead Service
		including Buyer's Guide			
Nov 14	Nov 2	Buyer's Guide:	LAN World	Comdex Fall	Lead Service
		Remote LAN Access			
Nov 21	Nov 9	User Excellence Awards	Unix Demographic Edition		Harvey Ad Study
Nov 28	Nov 16	Buyer's Guide:		DCI Mobile World	
		T-1/T-3 Multiplexers			
Dec 5	Nov 23	Test Series		DCI DB and Client/Server World/Chicago	Lead Service
Dec 12	Nov 30	Buyer's Guide: Imaging	LAN World		Lead Service
Dec 19	Dec 7	Test Series	Unix Demographic Edition		
Dec 26/Jan 2	Dec 14	**Network World** 200 Special Issue			

THE LONG AND THE SHORT OF CHOOSING A ROUTER AS TOLD BY FIRST OF AMERICA.

BOB FISHER is the Systems Analyst at First of America Services, Michigan.

"Primarily, we evaluated four routers — Cisco, Wellfleet, CrossCom, and Proteon — for SNA internetworking, IPX and IP capabilities.

"When it came to hardware configuration, Proteon provided extremely easy access. You could pop the cover off and readily change interfaces without having to string a bunch of cables. They provided flash memory for the operating system and configurations, so there was never any booting off a diskette. The LEDs on the front panel were also very nice. A quick look would tell you whether a given interface was up or not. None of the other router vendors provided that. In terms of speed and efficiency, Proteon beat the others hands down. And as far as the overall support for different topologies, Proteon worked well with everything. Unlike other brands we tested, the Proteon router was a true gateway.

"Reliability was another major criteria for selecting First of America's new router. You see, if we can't service our customers, we're out of business. Our network ties together six hundred bank branches. These terminals simply can't go down. So choosing a router to carry this traffic wasn't a decision I took lightly. Proteon proved to have the reliability we need. And if any questions did arise, Proteon's support representatives were readily available and very knowledgeable.

"Our bank is in acquisition mode, so integration is critical. After any merger, we have to integrate new networks into ours while migrating their applications. Right off the bat, our routers have to support all kinds of topologies. By deploying the Proteon DNX router at regional sites, we were able to provide these locations with SNA support very quickly.

"In terms of overall technology and performance, I'd have to say the Proteon router is absolutely the best."

THE SHORT OF CHOOSING A ROUTER AS TOLD BY PROTEON.

"No contest."

"Our router is incredibly easy to use."

"Proteon's reliability is second to none."

"We'll integrate any multiprotocol network."

"Amen."

proteon

For more details on the First of America story and our free Guide to Integrating SNA and Multiprotocol Networks, call 1-800-830-1300.

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